13: Beaglehole & Beaglehole E-5 (1938-1939) 1941
OU9 Tonga OU9
Vavau
Pangai

A group of say, sixteen women will make anything up to three hundred fathoms of bark cloth in one day's work. The length prepared is divided among all the women who shared in the work. Each household tries to keep from one to three hundred fathoms of cloth always on hand. This supply should last the household from one to four years, depending upon the size of the household, the number of gift occasions in which it participates, and the incidence of *tapu* mourning-occasions.

The stencilling of prepared barkcloth is a laborious job. There are relatively few stencils to be found in Pangai today. In terms of money-value, a new stencil costs from three to five pounds to make, depending upon the intricacy of the required design. Stencils are often borrowed. With their return to the owner would go a gift of from twenty to fifty fathoms of bark cloth according to the acknowledged value of the stencil. Stencils newly made today show a wide variety of designs and motifs. Besides the more orthodox flower and geometrical designs, stencils may include motifs which range from imaginative conceptions of the Tongan flag to the names of the main streets in Nukualofa. Many women in Pangai today are not bothering with stencils. They are decorating their bark cloth with freehand finger-painted designs. The orthodox Tongan dyes for bark cloth give two colours only: black and a reddish-brown. Today some women find commercial dyes bought at the store less troublesome and more pleasing to use. To the European eye these store-colours are often garish and crude as compared with the softness of the native dyes.

MAT-MAKING

The mats made by the Pangai women range from rough floor mats to the finer sleeping mats and, finest of all, the mats which function as skirts *(vala)*[10] to be worn on occasions

[10] The *vala* which for shortness' sake we translate as "skirt" (though the word skirt is likely to call up quite the wrong semantic association), consists of a rectangular piece of bark cloth or cotton piece-goods or a fine mat. It is worn wrapped round the waist, hanging from waist to ankles or just above them. For ordinary wear men fasten the *vala* at the waist with a leather belt; for ceremonial wear, with a sennit belt. Men wear the *vala* for everyday use. Men and women alike wear the ceremonial mat-*vala* on all occasions when respect and humility require symbolization.

13: Beaglehole & Beaglehole E-5 (1938-1939) 1941
OU9 Tonga OU9
Vavau
Pangai

244 often reserved for a feast-occasion. Expressions of satis-
262 faction are heard on all sides as the guests neglect the commoner tubers and concentrate on the yams. To our taste the yam did not seem particularly delicate nor greatly
[123] different in flavour from other tubers. But it would have been impolitic to inform our hosts of our real opinion in this matter.

244 There are some twenty-one different named yams that the villager may grow. At most he will plant no more than half this number depending upon his judgment as to which
244 are hardiest and most worm-resistant. The first yam-
221 cuttings are planted in June, very early in the month or else at the time of the full moon. A second planting takes place in August and a third from September to December. July is considered a bad planting month because worms are more
244 likely to attack the shoots at this time. About one hundred yam-cuttings are planted in each large hill. After the cuttings have developed strong shoots, the hill is opened, the yams replanted, from four to five shoots in each separate hill. These small hills are again reopened and one shoot is finally planted in a separate hill. For each complete planting therefore, there are three minor plantings. Sticks are used as supports for the growing shoots. The yam-gardens are weeded and kept clear. Each hill will finally produce four or five yams. They are mature in from five to eight months' time. The June planting for example, will be ready in December if there has been adequate rain toward the end of
[433] this period. One acre of land will grow about one thousand hills of yam. From four to six hundred hills is considered an adequate planting for the average household.

241 To give some idea of the size of the Pangai garden, the following figures were obtained for a small household of four persons. This household had planted about five hundred *manioke* (manioc) plants, one hundred hills of yam, eight hundred *taro* plants, sixty giant *taro* plants, forty banana trees in full bearing, together with small amounts of corn, melons and *kava* trees. Most of this was planted in August, 1938, when the family returned from a long visit to Tongatapu. On January, 1939, it was planned to plant a further three hundred *taro*

13: Beaglehole & Beaglehole E-5 (1938-1939) 1941
OU9 Tonga OU9
Vavau
Pangai

of the second group anything from 10s to £1 per year. Owing to various factors governing the export of Tongan bananas, not only from Tonga as a whole, but also from Vava'u in particular, these "most favourable circumstances" are more often conspicuously absent than inconspicuously present.

Two trading-stations are maintained in Pangai. They are owned by two of the trading-stores in Neiafu. The storekeeper of each station lives in Pangai. He draws a small monthly wage and is responsible for cash-sales at the station as well as the buying of green copra at prices set by the Neiafu principals, and the drying of this green copra on the station drying platforms. In 1938, according to figures supplied by the Neiafu owners of these two village-stations, about 115 tons of copra were produced by Pangai village. This was valued according to prices then ruling at about £430. The total village-income from copra production for that year was therefore about this sum. Again, according to figures given by the trading-stores, the cash sales for the year 1938 made by these two Pangai stations totalled just over £306.[15] This last figure does not, of course, cover the total store expenditure of the Pangai people. Some few of them occasionally go to Neiafu to visit friends or relatives. They then take the opportunity to spend what cash they have available in the larger stores where they can gaze upon shelves and shelves full of merchandise and groceries to their hearts' content and for the consideration of some minor purchase.

The two village-stations give credits according to the discretion of their managers. That this involves risks and necessitates good judgment is suggested by the fact that during the auction of the stocks and assets of one large store in Neiafu that had closed down, more than £1,000 worth of book debts were sold for £5. The opening bid was

[15] From the viewpoint of personality study we would still be interested to know why the Tongan manager of one of these village-stations produced at our request, and after the most herculean labours, an itemized account of store sales which purported to show that his store did a cash-business of well over £1,000 for the year 1938 when the books of the European owner of the business showed cash sales of £146! Very likely our good Tongan friend was dreaming of the day when he was going to be the owner of the largest store in Neiafu.

13: Beaglehole & Beaglehole E-5 (1938-1939) 1941
OU9 Tonga OU9
Vavau
Pangai

Between two extremes, there are such aspects of the culture as economics where a subsistence-economy that is largely Tongan in techniques and organization has been interpenetrated by a money-economy derived from European culture; or the ceremony of marriage where a Christian ritual and a civil registration have been imposed upon a Tongan way of marriage—here the Tongan form is likely to be submerged in the near future by an imported form that appeals because of its simplicity and is felt to be a necessity because of Christian teaching. But the function of marriage is still regarded in Tongan fashion as the producing of children.[35] There is as yet no evidence of a European cultural attitude that thinks in terms of contraceptives and planned parenthood.

Again, in customs relating to birth and death, Tongan practice is still largely followed in the village. Tongan midwifery is uniformly the rule at the birth of a child; and at death, Tongan customs are also followed with the exception that on the one hand Christian prayers and the singing of Christian hymns have now a part in the funeral proceedings, and on the other hand, villagers are all buried in the one village cemetery whereas in ancient aboriginal practice, before grouping in villages took place, a dead person was buried on his own plantation or under the floor of his house.

Finally, to take one more example, education, previously informal, has now become institutionalized by the establishment of a formal school-system. The curriculum and the content of this system are based on European models, the language of instruction is Tongan. This means that whatever changes are introduced into the village culture by the ability of the ordinary villager to read and write, nonetheless he is still viewing this culture through the medium of his own native language. The basis of communication within the culture, therefore, is still in terms of thought- and language-patterns which are given formal structure by the

[35] Dr. Lopdell gives us the case, which he regards as not untypical of Tongan belief and practice, of a still young married woman and her husband who had had twelve children in the first fifteen years of their marriage and none for two years thereafter, and who consulted him because of their worry over lack of more offspring. Their fear was that their neighbours would think that they no longer loved each other!

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

of personally contributing to the support and extension of missionary agencies. These measures resulted in the commencement of a commerce that has since reached considerable dimensions, and still continues to extend every year; while the native churches now meet the total expenses of the Missionaries, Native Ministers, and religious institutions amongst them. The islands have also been brought thereby into much closer, and more frequent, intercourse with the Australasian colonies of Great Britain.

The present mode of making oil is both rude and wasteful. With proper machinery, double the quantity of oil could be obtained from the same number of nuts now used. By the present native system from sixty to seventy nuts are required for every gallon of oil: whereas by the use of suitable machinery one gallon can easily be obtained from only thirty good oil-yielding nuts. Some persons very competent to judge, have not hesitated to say, that this quantity can readily be expressed from even twenty nuts. But, be this as it may, the value of a plantation of cocoa-nut trees, properly attended to, may soon be calculated: and, where the nuts of this prolific palm have been allowed, hitherto, to perish on the ground by millions every year, there must certainly be a good opening for European appliances and industry. The estimated produce of a full-bearing tree is from ninety to one hundred nuts per annum. A plantation therefore, of a few thousand trees would yield a good income. Already several of the residents, who, in by-gone days, landed on the shores of these islands, destitute wanderers, have, through the assistance of the Missionaries, and by the development of this

31: Nayacakalou E-4,5 (1957-1958) 1959
OU9 Tonga OU9

The land is low-lying and absolutely flat as most of the island of Tongatapu is. Without hills to trap the rain clouds the rainfall is not copious, so that the land, which is highly fertile, is fairly easily worked. The flatness of the country is fully reflected in maps of *api* which appear as neat little squares formed almost by drawing straight lines from one side of the island to the other.

4—ACQUIRING AN *API*

How does a man set about acquiring an *api*? The commonest way is through inheritance, the rules for which have already been referred to.[20] But for those who cannot inherit, the usual thing done is to wait for an *api* to become vacant. A man then approaches the chief, either directly or through someone related to him, or the Town Officer, to obtain approval for occupying the vacant *api*. Once this is granted, approval by the Lands Department is pretty well assured, and all that remains is to complete the formalities.

For those who come from a different area the business of acquiring land is much more difficult. They may have to 'sit around' in the village for a considerable time before an *api* finally becomes available for them. They could try, of course, by applying directly to the Lands Department; but this is in any case subject to there being enough land to go round in the locality concerned. In every case, considerable influence is exercised at the local level, and the role of hereditary holder of the *tofia* cannot be over-emphasised.

This is the general framework within which a man operates in the business of acquiring land. At this point I would like to quote the cases of three men who were interviewed on this subject:

A

I come from Niuafo'ou, and am using X's *api* to support both his family and mine. He has another *api* in M but does not use it. He is old and retired now. I am not related to him, but when I first arrived here I went and asked him if I could use his land as he was of the chiefly family and might have been able to help me get land (the chief was not here at the time). He agreed and I have been using his *api* since . . . I did ask the chief for an *api*, but there is none available. I said I would try at E, but the chief said he would let me have one as soon as it becomes available.

B

I am now living here with my wife and my grandson. I have only one daughter who is married in this village. I have no *api* of my own, but I share the use of her husband's *api* with him, and also use some of V's land. I have my own *api* in Vava'u where I have sons who are using it at present. I have not sold any cash crops from V's land because I just started using it in June. I have planted some bananas there, but the first crop is not yet ready. I do sell bananas from my daughter's husband's land, and the largest number of cases I have packed is about 5. I have no *api* because none is available for me. I am undecided whether to stay here permanently; of course I would like to

[20] See p. 100.

31 Nayacakalou E-4,5 (1957-1958) 1959
OU9 Tonga OU9

stay here, if I can get an *api*. I like it here because there are many more facilities here than there are in Vava'u—transport, employment, and also the land is easier to work here, for Vava'u is rough and rocky country . . .

C

I got my *api* from my father. I have two brothers living in this village, but neither has an *api* of his own. There are also two sisters, one of whom is married in this village and the other unmarried. I use my *api* on my own. I don't sell any copra from it—only bananas; about 10 or 15 cases per shipment. Last time I sold 7 cases, and before that 12. The most I have ever done is 35 cases . . . I pay 8/- a year for my *api*; and sometimes I take my first fruits to the chief. He never asks me for anything . . .

It appears that acquiring land is not as simple an affair as a perusal of the legal rules would make it out to be. While full control of the allotment of *api* is legally vested in the Minister of Lands, there are considerable local factors to be reckoned with. One of the most important of these is the authority of the hereditary holder of the *tofia*, which appears to be considerable despite the strict letter of the law. For while the law lays it down that application should be made to the Lands Department which should find the land, reference to the holder of the *tofia* being distinctly secondary, in practice this procedure seems to be reversed. Furthermore, while expulsion is a matter for the Minister of Lands to decide, it is difficult to imagine that, from the nature of the chief's authority over his people and their relations to him and to one another, his decision to expel is exactly as meaningless as the legal system is prepared to grant.[21]

5—The Distribution of Village Lands

Although land holdings are legally conceived and recorded in terms of individuals, I shall, in this section, consider the distribution of land in terms of households. This approach has distinct advantages from the point of view of a social study, for individuals do not exist *in vacuo* and in any case other features of the Tongan economy are best understood in these terms.

The material already given shows that the number of households in the village and the number of *api* normally held within the village tally pretty well—106 households to 107 *api* (including currently vacant *api*). Hence if distribution were in terms of households the task of allocation would be a relatively simple matter. However, there are several factors always forcing this fairly symmetrical relationship into the oblique position where there are households without *api*, *api* not being occupied by any households, households with more than one *api* and *api* being used by more than one household. The actual distribution of *api* among the 106 households is as follows:

[21] In this and other matters, the spirit of the culture still plays queer tricks with the letter of the law.

31: Nayacakalou E-4,5 (1957-1958) 1959
OU9 Tonga OU9

The Board's records showed the total amount of copra sold to it by these persons during the year 1957; and from these figures, taking the price of copra as £40 per ton,[25] a rough estimate can be made of how much money the sellers received. These figures, together with those obtained from my data on the distribution of both land and adult male labour among the households concerned, are presented in the following table:

TABLE 2A

DISTRIBUTION OF MONEY INCOME FROM SALE OF COPRA[26]

Household	No. of Adult Males in Household	No. of *Api* in Household	Amount of Copra Produced (tons)	Income from Copra (£)
1	1	0	.14	5.6
2	1	1	1.75	70.0
3	1	1	1.65	66.0
4	1	1	1.65	66.0
5	1	1	.18	7.2
6	2	2	2.15	86.0
7	1	1	1.80	72.0
8	1	1	.19	7.6
9	1	3	.36	14.4
10	1	1	1.65	66.0
11	1	1	.24	9.6
12	2	1	1.38	55.2
13	2	2	3.35	134.0
14	1	1	2.49	99.6
15	2	1	1.78	71.2
16	2	1	5.99	239.6
17	2	2	1.79	71.6
18	1	1	1.00	40.0
19	3	3	3.99	159.6
20	1	1	1.72	68.8
21	1	2	1.67	66.8
22	1	1	1.63	65.2
23	2	1	.90	36.0
24	2	1	1.38	55.2
25	1	2	.92	36.8

The same data may be presented in summary form to show the covariation between amount of labour, amount of land, and income more simply:

TABLE 2B

No. of Adult Males per Household	No. of Households	Total No. of *Api*	Average *Api* per Household	Total Income (£)	Average Income per Household (£)
1	16	19	1.2	761.6	41.35
2	8	11	1.4	748.8	93.6
3	1	3	3.0	159.6	159.6

[25] The price during 1957 was in the region of £43, but just before I left Tonga the new price of £38/15/0 per ton of first grade copra had been announced by the Board, which buys all the copra produced in Tonga. The round figure of £40 is taken for convenience.

[26] Interesting comparison may be made with the figures in Beaglehole 1941:60ff.

31· Nayacakalou E-4,5 (1957-1958) 1959
OU9 Tonga OU9

This sample is too small, but for what it is worth in the absence of a larger sample, the correlation coefficients between labour and production and between land and production suggest that money income varies more readily with the quantity of labour available than with the amount of land; i.e. a man is more likely to obtain a greater income by working harder than by increasing his land holding.[27] Uneven as it is, therefore, the distribution of land exerts only a minimal influence upon the amount of money obtained. This may partly explain why an uneven distribution of land tends to be left undisturbed; but this latter tendency may be tolerable only at the present level of economic development and may tend to disappear at a higher level.

6—Land Use and Labour

The legal provision relating to the planting of coconuts at intervals of 30 feet is, by and large, followed consistently on the majority of the *api* I have seen. Amongst the coconut trees there would be food and cash crops of several types, bananas, taro, yams, sweet potatoes, *manioke*, and even pineapples and water melons. In general, these are not planted in sharply defined plots but are interspersed one amongst the others, so that in an intensively cultivated *api*, members of all species would be found on each square chain of ground. This is more or less the general pattern, although there may be varying degrees of emphasis upon particular crops in particular parts of the *api*. Varying the pattern of emphasis would appear to me to play a similar role to straight out rotation.

The coconut trees belong to the planter but are heritable with the land on his death or secession; and as their normal productive life is 50 or 60 years, they may change hands several times during their lifetime.[28] But the other crops, requiring from three to eighteen months to mature, are the property of the planter, whether he be the legal holder of the land or not.

The distinction between permanent and annual crops makes it easier to understand all the sharing of *api* referred to in the previous section. For while the current holder of an *api* owns the coconut trees and other permanent resources, he need not have the whole *api* under the less permanent crops at any one time.[29] This gives him room to permit a friend or relative to plant for himself a crop of taro or yams

[27] My calculations produced correlation coefficients of r = .32 and r = .54 for land and labour respectively.

[28] The evidence of the 107 *api* which I studied shows that several of them had changed hands twice or thrice in the previous five or six years.

[29] The Beagleholes quote a man who estimated that up to twenty cultivators and their families can live off one *api*, Beaglehole 1941:18, but it is not clear whether this refers to an ordinary *api* of 8¼ acres or to one of the larger ones which may be up to 20 acres in area, Beaglehole 1941:17. In this connection it may be interesting to note that in a village of about twenty households which I studied in Fiji, the total area covered by food crops in various stages of development was found by detailed measurement to be 8.1 acres for all households.

181 as tourism, foreign economic interest, prices of
178 consumer goods, pressures to work and study
457 abroad, and the rural-urban drift which is creating
435 grave unemployment and population problems on
369 Tongatapu, intensifies the dilemma of *how to*
464 *improve the quality of life while preventing cultural and social deterioration.*

Although Tonga's economy is based primarily on
433 agriculture (main exports: copra, bananas,
241 desiccated coconuts), Tonga is slowly moving away from being a society of substantially subsistence
433 farming. Tourism, which is rapidly becoming a
457 major consumer industry, is being encouraged by the government as a source of employment and

[p. 54-B]

39: Gerstle & Raitt C,Q-4,5 (1952-1972)
1974 OU9 Tonga OU9

433 foreign exchange earnings; however, only with the
457 proper controls can tourism enhance cross-cultural interchange and understanding and prevent cultural sterilization, while being financially profitable.

439 As Tonga develops and as her population continues to grow, more and more foreign goods are being imported (e.g. canned food, motor vehicles,
433 tobacco, manufactured articles). So, in order to
47 avoid becoming increasingly dependent economically on other countries, Tonga is currently
179 seeking to develop and pursue interests and small industries (e.g. forestry, shipping, juice extraction, fisheries, vanilla production) which will help increase her cash income, will provide more job

[p.54-C]

39: Gerstle & Raitt C,Q-4,5 (1952-1972)
1974 OU9 Tonga OU9

opportunities within the Kingdom, and will help Tonga to become as economically self-sufficient as possible. Meanwhile, with a modest budget, she is also striving to improve educational and medical facilities and domestic social conditions.

Internal air-service is now functioning within the Kingdom, and plans for an airstrip to land international jets are being materialized; Tonga also intends to establish her own airline, called "Friendly Islands Air." These things, in addition to expanding international and local cargo and passenger shipping services, will hopefully serve to improve Tonga's communications and relations with the world, and

[A 55-A]

42: Walsh K-4,5 (no date) 1970 OU9 Tonga OU9

tensions and compulsions towards growth at subsequent points.'[29] It is not easy to reconcile such a proposition with the Tongan situation. Firstly, Nuku'alofa is not, at least as yet, a 'growing point' in the economic sense, for it lacks the industrialisation which is the 'dynamic force' of development.[30] With barely seven percent of those employed engaged in some kind of part-manufacturing or processing, it generates little of its own wealth. Secondly, with so many of its people dependent on agriculture and with a low per capita income, Nuku'alofa does not stimulate agricultural growth in the outer islands. Lastly, it has virtually no private sector capable of providing investment and government funds are directed mainly towards transport, and services, most of these in Tongatapu.

The resources of Tonga are limited. Agricultural exports accounted for 97 percent of all exports in 1967; coconut products representing 49 percent and bananas 45 percent. As the greater part of the income of government, which is the main investor and employer, is derived from these sources, the level of agricultural production is of vital concern for overall development.[31] The promotion of tourism may increase income levels in Nuku'alofa to the extent where this will ultimately 'trickle down' to the outer islands, and sizeable aid from Britain may ensure an adequate infrastructure for development, but development itself seems firmly based in agriculture, for, with such limited resources, industrial development and growth must originate in the countryside.[32] If this proposition is correct, concentration of resources in Nuku'alofa is unlikely to generate economic growth, at least for a long time, and with population increasing at its present rate this may be too long a time to wait if social harmony and the present social order is to be maintained.

In the meantime, copra production has declined by 50 percent (1957-67), and while banana production has increased by over 280 percent, most of this increase has come from Tongatapu which produced 83 percent of exports in 1967.[33] The low level of copra production can be traced largely to neglect in one form or another, and this is likely to affect trees now being planted with British government aid money. I would suggest that neglect stems mainly from these causes:

1. Agriculture generally is held in low esteem, and this influences the amount of money devoted to agricultural development.

[29] Hirschman (1958): 190, 184.
[30] See Myrdal (1957): 29.
[31] The quasi-government Copra and Produce Boards are in this sense included with 'government'.
[32] For criticism of development fund allocation see Walsh (1967a).
[33] Banana exports 1967 (percent): Ha'apai 9.7, Vava'u 0.8, 'Eua 6.3; Copra exports 1967 (percent): Tongatapu 48.5, Ha'apai 20.2, Vava'u 23.9 (the highest for seven years), other 7.3.

42: Walsh K-4,5 (no date) 1970 OU9 Tonga OU9

2. Growers suffer from a lack of incentives. One example of this is the low price they are paid—45 percent of that obtained by the Copra Board.
3. A feeling of malaise and neglect by government in the outer islands. They have received directly only about 10 percent of development moneys, yet government needs to be *seen to be active* in this and other ways.
4. A fatalism which assumes that God and Government will eventually provide, which obviates the need for individual action.
5. The panacea of tourism, the discovery of oil and other ventures that are expected to produce Kuwait-type returns. This obviates the need to turn seriously to agriculture.

In a society where initiative belongs to the chiefs, government is the only significant innovator. As most of the reasons for low production seems to be cultural in origin, cultural solutions are most likely to solve them. This, initially, means a reappraisal of priorities and a reallocation of funds; a close examination of present methods of land use and land tenure; a revised education system which places less stress on academic learning; and the use of radio and other media to 'play-down' the attractions of Nuku'alofa and Tongatapu, for these are often highly exaggerated in the minds of the islands' population. Only direct government intervention can reduce migration to a rate where it more closely approximates economic development.[34] And as all of Tonga is a 'backward area' in relation to the countries with which it has economic connections, direct government intervention from these countries is also necessary to stimulate and maintain development. This, basically, requires better trade and shipping conditions and a higher rate of investment, not an increase in aid which in itself is unlikely to stimulate growth.

CONCLUSION

In summary, population movement is not new in Tonga. While some older patterns, such as dispersed settlement, the full occupance of the smaller islands adjacent to Tongatapu and 'Uta Vava'u, and the siting of settlements in areas where there is a balance of land and sea resources, appear to have gone or been severely modified, other trends suggest the re-establishment of older patterns—the resettlement of some of the volcanic islands, possibly a more widespread use of the interior of islands, and the pre-eminence of Tongatapu and its capital, Nuku'alofa, which in a limited political sense could be considered the modern counterpart of ancient Mu'a with all its attendant powers of central authority. Other patterns continue—population moves among

[34] *Cf.* Myrdal (1966): Chapters 3, 4.

43: Maude K-4,5 (1962) 1970
0U9 Tonga 0U9

SHIFTING CULTIVATION AND POPULATION GROWTH IN TONGA

by

ALARIC MAUDE

The relationship between population growth and agricultural systems has been a central question in some of the recent geographical work in the Pacific Islands (e.g. Brookfield, 1962; Clarke, 1966; Lea, 1965). This paper seeks to contribute to this body of research through a study of the effect of population growth on the agricultural system of Tonga, an island group which in common with a number of other South Pacific territories has experienced rapid rates of population increase in recent decades. The study also attempts to assess the extent to which the arguments of Ester Boserup on the relationship between agriculture and population growth can be usefully applied to the process of agricultural change in Tonga. Boserup's thesis (Boserup, 1965) essentially is that the intensification of traditional agricultural systems from long fallow to short fallow to multi-cropping occurs only when forced by population pressure, because such intensification involves an increase in labour input and a decrease in output per man-hour. She therefore regards the agricultural system as the dependent variable in the relationship between population and agriculture, and explains differences in cultivation systems as the result of differences in population densities.

THE AGRICULTURAL ENVIRONMENT

The chain of some 150 islands in Western Polynesia which forms the Kingdom of Tonga has a total land area of 256 square miles and supports a population of about 81,000 (1968). The economy is overwhelmingly agricultural, and is based largely on subsistence food cropping and the export of bananas, copra and desiccated coconut. Over 90 per cent of Tongans live in the three main groups of Tongatapu, Ha'apai and Vava'u (Fig. 1), where almost all the islands are of raised limestone formation. The climatic variable of greatest agricultural significance is rainfall, which increases from a mean of 67 inches at Nuku'alofa (Tongatapu) to

basis of parent materials, relief and climate, Ha'apai soils should be very similar to those of Tongatapu, but in fact appear to have much lower levels of available phosphorus and possibly slightly lower levels of available potassium.[1] Soil analysis by itself, however, is not particularly conclusive, and no yield measurements or fertilizer trials have been made which might provide further evidence on the question of differences in soil fertility. Any decline in fertility that may have occurred has obviously been only moderate. The soils of Ha'apai are by no means nearly exhausted, and satisfactory yields are still obtained. During fieldwork it proved impossible to find a plot which farmers considered so depleted in fertility that it would have to be left fallow for more than about three years before reasonable yields could again be obtained. There is also no evidence to suggest that people in the areas of high population density have a diet poorer in quantity or quality than elsewhere in Tonga.

241 134 182 125 241 134 182 182 262

While there has therefore been some deterioration in the fallow vegetation and probably some decline in soil fertility there are as yet no indications of serious stress in the agricultural system. Food production per head may have been maintained by the increase in the length of cropping in relation to fallow, and by the shift in crops, and it is significant that, despite their complaints of declining yields, hardly any of the farmers questioned in the areas of high population density seemed to feel any need for changes in the bush fallow technique. The argument that changes in methods of maintaining soil fertility may not be necessary under Tongan conditions therefore receives some support, but it is not yet possible to determine whether the absence of serious stress reflects the ability of the soil to bear frequent cropping, or is more a result of the limited length of time the soil has been intensively farmed.

241 182 [134] [433] 241 182 134

There are, however, further possible explanations for the failure to adopt new techniques. The rate of

241 182

[1]The samples were of the top 10 to 12 inches of *kelefatu* soils in the two groups. Ten samples were collected in Ha'apai and 21 in Tongatapu. The mean level of available phosphorus was 43 p.p.m. for the Ha'apai samples and 1052 p.p.m. for the samples from Tongatapu. The difference between these means is significant at the 2 per cent level. The mean level of available potassium was 373 p.p.m. in Ha'apai and 529 p.p.m. in Tongatapu, but this difference is not statistically significant.

[126]

[p.63-A]

43: Maude K-4,5 (1962) 1970
OU9 Tonga OU9

population growth over the last three decades, and consequently the rate of increase in the intensity of cropping, has probably been more rapid than the rate at which Tongan farmers are willing to change their established methods and particularly their habits of work. By contrast, the more elaborate techniques used by the New Guinea agriculturalists discussed by Brookfield (1962) and Clarke (1966) appear to have been developed over a lengthy period under conditions of slow population growth. Furthermore, in the past the Department of Agriculture has done very little experimental or extension work on the problem of maintaining soil fertility under food cropping, and most of the technical advice given has concerned cash crops. Consequently many Tongan farmers have little knowledge of the techniques that could be adopted, and unlike shifting cultivators in some other areas they have had no contact with peoples practising more advanced systems of subsistence agriculture.[2] They also have no tradition of livestock farming (except with pigs) which could be developed into an intensive farming system based on manuring, as is found in parts of Africa.

The relevance of Boserup's thesis to the process of agricultural change in Tonga may now be briefly reviewed. While none of the material presented above conflicts with her thesis that the intensification of traditional agricultural systems occurs only when forced by population pressure, for it is evident that differences in the intensity of cropping in Tonga are related to differences in population density rather than to differences in land quality, it does suggest some qualifications to her argument.

Firstly, not all of the adaptations made by Tongan farmers to population growth have involved increases in labour input, for one response has been to adopt a high yielding and easily cultivated crop such as cassava.[3] Secondly, a good deal of intensification seems possible without necessitating basic changes in the agricultural system. Short-term in-

[2]Compare the comments by Boserup (1965, pp.41, 64).

[3]On the other hand more labour is now required for clearing and weeding gardens and yields have probably been affected by the decline in soil fertility, but whether the net result has been a decline in output per man-hour is impossible to determine in the absence of data on labour inputs and production.

[p.63-B]

131 Tongatapu and 'Eua islands and a few smaller islets. The
131 Ha'apai Group consists of numerous small atolls. Fifteen of
162 these were inhabited at the time of the 1966 census. The
161 total area of the atolls of Ha'apai that were inhabited in
1966 is 20.1 square miles, with a population density of 521
131 per square mile. The Vava'u Group lies to the north-east
of Ha'apai. Like Tongatapu, it has a main island that gives
its name to the Group and a cluster of atolls nearby.

The distance between Nuku'alofa and Neiafu, the main towns of Tongatapu and Vava'u, respectively, is 165 miles (usually a matter of three days' journey on the government
132 passenger vessel). Within this distance the climate varies from tropical in the northern islands to sub-tropical in the south, with a mean annual rainfall of 86 inches in Vava'u and 67 inches in Tongatapu (although with considerable variation from one year to the next).

Yams, taro, sweet potato, manioc, breadfruit, bananas,
241 plantains, coconuts and watermelons are grown throughout
[184] Tonga, albeit in differing proportions in different parts of the country. Except for breadfruit, these crops yield all year round, and all but watermelons are important
241 subsistence crops. The principal cash crops are bananas,
433 coconuts and watermelons. Bananas and coconut products
[439] (copra and dessicated coconut) make up more than 90% of the value of Tonga's exports. The nation's economy is based on

241 peasant production; the value of subsistence crops produced
433 for local sale is negligible.

Population

161
[162] The population of Tonga at the census of 1966 was 77,429, of whom 98.31% were classified as Tongan (in contrast to others such as Europeans, part-Europeans, and other Pacific Islanders (Piefia 1968: 7). The population total reflects an annual rate of increase of 3.24% in the period since the previous census, which was held in 1956, compared with 2.94% during the preceding intercensal period, 1939-56.
[163] The difference is explained not so much by any great change
[165] in the birth rate as by a reduction in the death rate. Table 1 shows population totals over a period of about fifty years, beginning with the census of 1911, the earliest census for which there are published figures available.

Population projections made by Norma McArthur, an Australian expert in Pacific demography, indicate an estimated population of more than 100,000 by 1975 and more than double the population of 1956 by 1980 (Kingdom of Tonga Economic Survey of Tonga 1970: Appendix A.1). These projections, based on the findings of the 1956 and 1966 censuses, assume the maintenance of age-specific fertility rates and continued slowly falling mortality rates, with no significant outmigration. McArthur's projections appear to be slightly on the high side, for her estimate was that the

[TEXT CONTINUED ON PAGE 40]

47: Decktor Korn E-5 (1969-1970) 1975 OU9 Tonga OU9
Tongatapu
Motulahi

feature characteristic of these societies is the optative and changeable nature of the composition of household groups.

Fluctuating patterns of household composition have received less attention than other features that are characteristic of Oceanic societies. Usually they are discussed within the context of studies of land-holding groups, and they have generally been treated either as a secondary aspect of ecological adaptation or as a by-product of the flexibility of social organization in these societies. Studies that focus on actual settlement patterns, however, are more actor-oriented than are studies of land-holding groups. This different focus directs attention to what I take to be a lack of conceptual clarity in the use of such terms as "option" and "choice" in discussing the diverse behavior of different people in a society. This problem emerges in the final section of the paper, where I consider the meaning of the data that are presented here.

VARIATIONS IN HOUSEHOLD STRUCTURE IN A TONGAN VILLAGE

Tonga, a country of about 150 islands, lies east of Fiji and south of Samoa. (It is also known as the "Friendly Islands"—a name given by Captain Cook, who visited Tonga in the course of his voyages of 1773-74 and 1777.[1]) About 40 of the islands are inhabited, with a total population in 1970 of more than 80,000; three-fifths of the people live on the main island of Tongatapu. The total land area of the country is about 256 square miles, two-fifths of which is Tongatapu.

Although there are only four centers of administration and commerce in which social differentiation is such that they can properly be called "towns," about one-third of the total population is clustered in these areas (two are on Tongatapu). The remaining population lives in villages that are dotted throughout the islands in a nuclear pattern of village settlement; this settlement pattern is largely the result of practices established during a period of civil war that lasted from 1797 until the mid-1800's. Most of the people who live in the rural areas and many of those who live in the towns are wholly or partially dependent for their livelihoods on peasant agriculture.

There is no consensus among Tongans on what composition constitutes the ideal household, but all adults would agree that the ideal household is one in which I, the speaker, am the head. Most Tongans would probably say that a household ordinarily comprises a single family unit consisting of a married couple and their unmarried children. Not all households conform to this pattern, however. In fact,

1 Tonga was first visited by Europeans in 1616, but sustained contact with Europeans did not begin until almost the end of the 18th century. Despite considerable European intervention since then, including the Christianization of the entire population before the end of the 19th century, Tonga has remained formally independent. In 1970, the Kingdom of Tonga joined the British Commonwealth of Nations.

47: Decktor Korn E-5 (1969-1970) 1975 OU9 Tonga OU9
Tongatapu
Motulahi

> Although . . . the language of kinship plays a dominating role in the expression of social relationships, social behaviour is not constrained by the prior existence of kinship corporations. It is not so much that the Sinhalese order their economic lives in accord with kinship relations as that their kinship relations are an expression of the way in which they order their economic lives (1960:123).

The resources available to the Tongan household must be sufficient to provide for three types of expenditures: expenditures for everyday material needs, periodic cash outlays, and contributions of goods and labor on ceremonial occasions.

The everyday material needs of a household consist mainly of foodstuffs and fuel, along with petty cash for such items as bus fares, matches, and soap. Foodstuffs and fuel are derived mainly from locally cultivated subsistence products. (There must, of course, be labor available to prepare and make use of these products, hence the need for human capital). Everyday foodstuffs that are purchased include bread, flour, sugar, salt, tea, cocoa, and dried milk. The frequency and amounts of such purchases varies mainly according to how much cash is available.

A household must also have the cash for periodic outlays to pay members' expenses, such as income taxes, the annual poll tax on every male over the age of 15, church contributions, and schooling expenses for the children, as well as to buy store-bought goods such as clothing and fabric, household utensils, and other implements. Such purchases and expenditures generally require relatively large cash outlays, which are seldom provided for through systematic savings. Instead, members of the household make a special effort to assemble the money shortly before it is needed. Men collect coconuts and make copra or else sell the coconuts directly to the Tonga Copra Board, while women prepare handicrafts for sale to tourists. There is noticeably more copra-making activity and also a well-stocked handicrafts bazaar in the weeks preceding a new school term, when money is needed for books, uniforms and school fees. Usually, people try to make more money than is needed for the major outlay at hand, with whatever is left being doled out to provide cash for everyday needs until another major effort is made.

Finally, a household must have the means for its members to make adequate contributions of goods and labor on a wide range of ceremonial occasions that occur at irregular intervals throughout the year: feasts, funerals, weddings, and so forth. There is a class of goods called *koloa* ("treasure") that come into play only on ceremonial occasions; these consist mainly of finely woven mats of various kinds (*kie, fihu,* and *ngafingafi*) and printed tapa-cloth (*ngatu*). *Koloa,* which is amassed through manufacture by women of the household or through

49: Rogers A-4,5 (no date) 1969 OU9 Tonga OU9

Kingdom's total population, had 58.9% of the total households with two family units and 63.2% of the households with three or more family units.

The Report does not distinguish whether households with several families have come about as a result of grandparents, son and wife, and grandchildren living in the same household, or as a result of brothers and their wives sharing one household. It is also unclear how the local census officers demarcated dwelling units clustered together and cooperating as the one single household. In many parts of Tonga there is a precedent in custom for three or even four generations of the same kin-group to live within the same *'api*, the family unit of the oldest son occupying the main dwelling with other units (parents and unmarried siblings; families of married siblings) having separate dwellings around. Because of the traditional brother-sister *tapu* there may be an additional hut for unmarried sons. There is less precedent in Tongan custom for two or more family units of the same generation (e.g. siblings, their spouses and children) to live within the one dwelling: this could be a criterion of overcrowding.

It seems from the census figure of 16% ("households" with more than one family unit) that overcrowding is not yet severe in Tonga except in Nuku'alofa. Here families of siblings are sharing dwellings, and huts are being built on swamp land. Elsewhere, the occurrence of households containing more than one family unit may be accounted for as the persistence of the traditional co-resident extended family, comprising several generations where each "extra" family unit may have its own separate dwelling house which may or may not have been recorded in the census schedule as a household. The increase in average household size has been accompanied by a fall in average overall acreage of land per household from 15.08 acres per household in 1956, to 10.98 acres in 1966.

* * *

The population densities already discussed have little meaning except in relation to the availability and utilization of natural, agricultural and human resources. The natural resources of Tonga comprise almost exclusively the soils, reefs and surrounding seas with, in late 1968, an elusive possibility of oil; the agricultural resources comprise almost entirely trees—particularly coconut, banana, breadfruit—and ground crops grown mainly without mechanical aids by slash-and-burn methods. Human resources are discussed at the end of this paper.

Dependence on agricultural produce is enormous; in 1961 and 1964 these products amounted to 98.19% and 96.39% respectively of Tonga's total export earnings with copra (the dried kernel of the coconut) forming the basis of the economy and constituting over 80% of the visible exports throughout the 1960s.[6] Agricultural products are the surpluses and small cash-crops of Tonga's 12,000 or so peasant farmers who are scattered throughout the Kingdom and rent their allotments either from titled nobles or directly from the Government.

6. TONGA, 1960–1967 *passim*. Total exports for 1961 amounted to £T1,374,658; agricultural exports £T1,349,461; non-agricultural exports £T25,197.

49: Rogers A-4,5 (no date) 1969 OU9 Tonga OU9

GARTH ROGERS

Systematic development of agricultural resources was the prime concern of Tonga's first development plan (1965–1970), the main effort and spending being allocated to a comprehensive Coconut Replanting Scheme. Banana exports to New Zealand and Japan have fluctuated although they have gradually increased throughout the 1960s. But other agricultural exports—such as watermelons, fungus, groundnuts, pineapples, vegetables and ginger—comprise only a very small fraction of the total exports. Other crops are either completely absorbed by home consumption or are, as yet, only in an experimental stage.

A fishing industry has been established in Nuku'alofa with the aid of Japanese experts but in 1968 it was barely supplying the home market. Local private fishermen would sell a string of small fresh fish, in all about three to four pounds, for about fifty *seniti* (NZ50c). Fish was sold in the government market at intervals of about two weeks but the supply rarely lasted more than one day. Tuna and shark caught by the government vessel were refrigerated in the government market and sold for ten and four *seniti* per pound respectively. Labourers' wages at that time in Nuku'alofa were one *pa'anga* (100 *seniti*) per day. By early 1969 small shipments of crayfish tails were being transhipped to the United States via Fiji by an Australian fisherman who owned his own craft but employed local Ha'apai labour.

* * *

A very high proportion (75.57% or 57,526) of the total Tongan population was classified in the 1966 census as "economically inactive", that is, as persons not engaged in any form of "industry" ranging from subsistence agriculture to public service. Included in this category were 16,308 or 81.3% of all adult Tongan women who were engaged in "home duties", all children under fifteen years of age, and all who were students over fifteen years or retired. It should be understood, however, that women perform some important economic tasks such as assistance with food-gathering and copra-making. Moreover, according to the traditional division of labour in Tonga, women make mats, baskets and bark-cloth as part of their "home duties". Nevertheless, only 1,013 or 5.0% of adult Tongan women were engaged in activities other than these.[7] No Tongan women were listed as employed in "government and administration" (excluding government clerks); 607 or 3.02% of all adult Tongan women (compared with 1,715 Tongan males) were listed as employed in "services" (religious, educational, medical, personal; not transport); 173 or 0.86% (compared with 180 Tongan males) in "commerce"; and only 18 or 0.089% (compared with 579 Tongan males) in "part-manufacturing and processing" industries.[8] In Tonga, the traditional idea and practice that man is the provider and head of the household still persists.

7. TONGA, 1968: Table 12b, 72–74.
8. In 1961, 9.5% of all adult Western Samoan women were classified as "economically active" (excluding "village agriculture"); 7.9% of all adult women, mainly the 15–29 age-group, were engaged in "industry" of one sort or another. The 1966 Cook Island census (pp. 5, 55) lists 1,620 adult Cook Island women or 35.4% of all adult females as "economically active" of whom 1,032 resided in Rarotonga. Cook Island women engaged in manufacturing numbered 301 (compared with

54: Cook G,T-5 (1777) 1967 OU9 Tonga OU9

what is merely Ornaments may be highly valuable at one time and not so at a nother. When we first arrived at Anamoca the people would hardly take them in exchange for fruit, but when Feenough arrived they rose in their Value to what I have just mentioned.

For some of the above mentioned articles every refreshment may be procured that the islands produceth and which is Hogs, Fowls, Fish, Yams, Bread fruit, Plantains, Cocoanuts, Sugar Cane and in general every[thing] that is to be got at Otahiete or the Society isles. Their Yams are excellent and when grown to perfection keep very well at sea; but their Pork, Bread fruit and Plantains altho very good are nevertheless much inferior to the same articles at the Society isles. Good Water a very Matirial article to Shipping is scarce at all these islands, its true it is to be found on them all but then it is either too inconsideral or ilconvenient to come at: but sence they afford plenty of Provisions and Cocoanuts one may very well despence with[1] such Water as is to be got and if one is not over nice there will be no want. While we lay at Anchor under Ogodoo, some people from Oghao informed us, that there was a Stream of water in that island which came from the Mountain and run into the Sea on the sw side of the island where there was anchorage, that is on that side facing *O'tafoa*, an island remarkable by having a considerable Volcano in it which burnt Violently all the time we were in its neighbourhood. Oghao and O'tofoa are also remarkable on account of their height: it is from the latter they get the black Stone on which they make their hatchets and other stone tools.[2]

Under the denomination of *Friendly Isles* we must include not only *Happi* which I visited but all those that have been discovered nearly under the same Meridian to the North,[3] as well as some others which have never been seen by any European but are under the Dominion of *Tongatabu*, which is the Capital (tho not the largest) and seat of Goverment. If we credet the Inhabitants this *Archipelago* consi[s]ts of One hundred and fifty three islands,[4] some indeed are mere spots and without Inhabitants, and others must lay in Groups like those about

for blue made it the fashionable one, & all others were in a Manner despisd; Green & red however latterly began to rival it. Red cloth or bays was also much esteem'd, & linnen . . .'—King, 17 July.

[1] *despence with*, in the sense here, I think, of 'put up with'.

[2] There was naturally a plentiful supply of basalt on the volcanic Tofua.

[3] Cf. II, p. 449, where Cook virtually settles the limits of the Friendly Islands.

[4] Cf. p. 100 above. 'We have the names of 120 diff[t] Islands & many have reckon'd by small stones 150: amongst these are doubtless, included every small spot, but there are 12 which they say are high like Eōōa & thirty seven large, of their size we can only judge in general from their deeming Anamōōka a small Island & Tonga-taboō a large one, but amongst all this Group, there are three, which by many accounts, & being frequently mention'd are full as considerable as Tonga-taboō; these are Va'vaoō, Hamóa & Feegee. . . .'—King, f. 87.

64: Urbanowicz E-4,5 (1970,1971) 1976 009 Tonga 009

this will be an indication that the basic fabric of their culture and society has shifted.

NOTES

1. This is a revised version of a paper presented at the Third Annual Meeting of the Association for Social Anthropology in Oceania (March 13-17, 1974) for a Symposium on "Alcohol and Kava Use in the Pacific Islands." Research was conducted in Tonga from July to October of 1970 and from August to October of 1971. In the intervening months archival research was conducted in the major libraries of Fiji, New Zealand, and Australia, with most of the research being done in the Mitchell Library, Sydney, Australia.
2. There is at least one other alcohol-dispensing club in the Kingdom, namely the "Vava'u Club" in Vava'u. Since my work in Tonga a new hotel has opened in Vava'u, and alcohol prices probably follow the prices of the hotels on Tongatapu. It should be pointed out that in 1970 and 1971 the various clubs and hotels were selling beverages in obvious violation of Tonga's "Blue Laws" which (theoretically) forbid essentially all non-religious business activities on Sundays.
3. For further information on rank and title see Urbanowicz 1973:114.
4. Tongans not only presented *kava* roots to important individuals but also took *kava* roots on visits to important places. The Wesleyan Missionary W. Cross, in the islands from 1827 to 1833 and again from 1834 to 1835, pointed this out: "The [Tongan] Chief observed that on former occasions when they visited and [*sic.*] island it was their custom to take large pieces of *kava* for the gods; and that to Nomuka alone they used to take at least 10 pieces" (Cross 1830b).
5. A similar detailed description from Hobbs supports the idea of title removal and land distribution at a kava ceremony: "A 'fai Kava' i.e. meeting for drinking Kava took place at Nuku'alofa on Tuesday the 18th at which [Jiosaia] Tubou presided of course as the Tui-kanokubolu. Taufa-ahou [also known as King George Tupou] and all the other principal persons were there, and word was sent to Lavaka at the Bea to come and attend before our people and Taufa-ahou left the Island, but Lavaka [still] refused. The ceremony therefore proceeded without Lavaka. THE PRINCIPAL OBJECT OF THE KAVA MEETING WAS TO STATE OFFICIALLY FROM THE TUI-KANOKUBOLU WHO WAS THE[N] [TO] OCCUPY THE GOVERNMENT IN THE DIFFERENT DISTRICTS IN TONGA since the rebellion: and the principal things affected by this appointment are as follows: Old Fatu who was the 1st heathen [or non-Wesleyan] chief who submitted, and who had now come to Nukualofa to the Tui-kanokubolu has got a considerable augmentation of his power in being appointed Tui-Hahake. OLD LAVAKA IS OFFICIALLY DEPRIVED OF ALL HIS POWER BY THE APPOINTMENT OF OLD SEMI AND TOKE as Tuihaamea, because the fortress at the Bea stands in Haamea" [all STRESS added] (Hobbs *Journal*: April 22, 1837).
6. I witnessed a *Taumafa Kava* ceremony on the island of 'Eua over the period 14 September to 17 September, 1971, having travelled to the island with the royal part on *H.M.V. Kao*. Enroute to 'Eua from the island of Tongatapu, a journey of some four hours, I was fortunate to have approximately a three hour and forty-five minute private discussion with His Majesty King Taufa'ahau Tupou IV (on just about everything under the Tongan sun, including *kava*). Much of my thinking about *kava* has been influenced by my discussions with His Majesty AS WELL AS by numerous discussions with other Tongans, of all ranks. I also took part in numerous kava ceremonies in Tonga occasionally where I was treated as the guest of honor.
7. The *'inasi* ceremony was not only an important ceremony in aboriginal Tongan society but it also had parallels in other parts of Polynesia (Goldman 1970:134; and Sahlins 1958:24-25). The Tongans were a horticultural people and indeed, today, agriculture along with "tourism" are the mainstays of the Tongan economy. The yam

to the use of land. For every two householders with 'api tukuhau there was a further householder who was sharing land with a relation. The situation with regards to 'api kolo demonstrated the social significance of land still further—a third of the householders were sharing the 'api of relations.

Just as no village family could rely entirely on subsistence agriculture, few families in the town could rely entirely on wages. The town's economy, like the traditional peasant economy outlined by Franklin,[18] is labour and not capital intensive, kin relations serve a socio-economic role and there is a close attachment to the land. It would be erroneous to talk of per capita income in Tonga; the important consideration is family income. Although not entirely controlled by the head of the household as chef d'entreprise, the broad direction of spendings earned by members of a family is the concern of all the family, especially so in times of crisis or investment in education. And the families, though nuclear by residence, are extended in terms of mutual recognition of services and obligations.[19]

It would not be fakatonga, the right behaviour in terms of respect within Tongan society, to deny a relation access to land, residence, employment or a share in family success. If these are characteristics of a peasantry, one can only say that they are common to all of Tonga, rural and urban. Town dwellers are inescapably bound up with the land. They own it as much as villagers, they rely on it to supplement wages kept low on the assumption of an additional income from agriculture, they value it as a means of fulfilling family obligations and as a measure of their social importance and they depend on it for food. There would be few established household heads, even the most wealthy and the most "urbanised", who do not have a son or relation on their land or on land acquired through their influence. It is the function of a successful household head to find employment for as many of his family as possible. The labour commitment is total and the basic unit of economic organisation is the family, controlled and directed at least to some extent by the household head.[20] A typical family would endeavour to have some member in paid employment, some on the land and some in the "bazaar" sector of the town's economy—a small grocery shop, in the making of handicrafts and other side-line businesses. This diversity in family employment provides material security in an economy which offers insufficient full wage employment; it also indicates the economic obligations borne by the chef d'entreprise towards his kin.

It should be clear that everyone in Tonga is to some extent involved in a money economy, the town dweller somewhat more than the villager but this has not yet led to any noticeable individualisation. There is little evidence of individuals trying to opt out of reciprocal

362 Since these are also the best endowed areas for 'api tukuhau, the recent migrant is likely to build in indigenous material while those in paid employment can afford and are likely to build a house entirely of imported materials. Table V demonstrates that 43 per cent of those household heads living in houses constructed of composite materials and 53 per cent of those living in houses constructed of indigenous materials were employed in agriculture. Furthermore, of those living in composite housing only 30 per cent had been born outside Tongatapu.

[369] The overall design, internal and external arrangements of these houses differ little from those of the countryside and this again demonstrates the persistence of traditional modes of life within the town. Many houses adhere to the traditional apsidal or oval floor plan but even those with non-traditional rectangular floor plans are arranged to meet the flexible demands of sleep and entertainment. [593] Adolescent boys have a separate sleeping hut in keeping with the [343] traditional practice of brother-sister avoidance. Living, eating, [171] cooking and washing activities take place in separate buildings in keeping with practices traditional to much of Polynesia.

511 Tongans living in houses of composite materials have more
184 copra driers on their 'api kolo, clear evidence of their active involvement in agriculture. They own more horses and carts, buy less [264] imported food than those living in large wooden houses. They are more likely to follow the rural practice of eating two and not three meals a day (see Table VI). Their women folk are more involved in the making of tapa in the kautaha koko'anga, in making other Tongan handicrafts, and are active in attendance at the fale hiva or choir house of the local church.

443 A town's bazaar sector, labour intensive and family directed,
[369] is considered by some students of Asian cities to bear at least close resemblance to and have close links with the rural peasantry and therefore deserves some brief mention here. The bazaar sector in [433] Nuku'alofa is not well developed. This is because the Tongan economy itself is underdeveloped, consequently offering fewer opportunities. The main activities in the bazaar sector are small-scale trading from single room shops which sell at prices slightly in excess of the European firms from where they have purchased their goods; the hawking of handicraft goods mainly to tourists; and the sale of primary produce such as ground foods, kava, Tongan oil and shellfish.
443 In some cases the people involved are middlemen acting for villagers,
441 and one group, the fakafefine, have some form of loose cooperation which cuts across kin affiliations. The fakafefine (the word means "like a woman") work in teams, each team jealously guarding its round of customers. Some have groups of women manufacturing the articles they sell and most have trading arrangements beyond Nuku'alofa and

67: Maude K-5 (1961) 1973 OU9 Tonga OU9

7 Land shortage and population pressure in Tonga

Alaric Maude

The problems of land shortage and population pressure in small islands with only limited resources have been recurrent themes in recent geographical research in the Pacific islands, particularly in island Polynesia where populations are now generally increasing at rates of between 3 and 3·5 per cent annually. This essay is concerned with the chain of islands in western Polynesia which form the Kingdom of Tonga (Fig. 7.1). The 150 islands of the Kingdom, comprising the three main groups of Tongatapu, Ha'apai and Vava'u, and a number of outlying islands, have a total land area of only 663km² and support a population of about 87,000 (1970 estimate). The Kingdom's only natural resources are the soil and the surrounding reefs and seas, and the economy is overwhelmingly agricultural, being based largely on subsistence food cropping and the export of bananas, copra and desiccated coconut. With a limited area of land, a population density in 1970 of about 185/km² of arable land, and a projected annual population growth rate of 3·1 per cent, Tonga faces potential problems of land shortage and population pressure as severe as in any other nation or territory in the Pacific Islands, with the exception of some of the atoll groups.

The focus of this essay is on man/land relationships, for with an essentially agricultural economy these are central to Tonga's population problem. The main objective is a search for, and examination of, possible symptoms of population pressure within the man/environment system. Particular attention is paid to land tenure, which determines how land is allocated amongst the population; the agricultural system, agriculture being by far the most important use of land; and the perception of, and reponse to, population pressure by Tongans. At a more theoretical level, the final part of the essay

67: Maude K-5 (1961) 1973 OU9 Tonga OU9

deterioration in the fallow vegetation, with an increase in the proportion of grasses and other herbaceous plants and the spread of lantana (*Lantana camara*) and guava (*Psidium guajava*), and weeds have become much more of a problem for farmers than in the past. It is also widely believed that soil fertility in Ha'apai has declined over the last few decades. This belief is partially supported by the results of chemical analyses of Tongan soils. Ha'apai soils should be very similar in composition to those of Tongatapu, as parent materials, relief and climate are much the same throughout the two groups, but analysis of a number of soil samples suggests that they have much lower levels of available potassium. Chemical analysis by itself, however, is not a completely reliable guide, and there have been no yield measurements or fertilizer trials which could provide further evidence on soil differences. The comments of farmers, on the other hand, indicate that there has certainly been no serious decline in soil fertility, for satisfactory yields are still obtained despite the intensity of the agricultural system.*

An economic assessment

Assessment of the effect of high population density on the level of living supported by the agricultural system is more difficult, because the level of living is influenced by a large number of variables apart from population density, and data that might be useful in such an assessment are limited. As far as food production is concerned there is no evidence to suggest that people in rural areas of high population density have a diet poorer in quantity or quality than that found elsewhere in Tonga; the worst nutritional problems are in fact in the towns. Production per head appears to have been maintained by the increased frequency of cropping and the change to higher-yield tubers, and any deficiencies which might result from a high consumption of protein-poor cassava are probably balanced by a high consumption of seafoods. Measurement of food gardens in three villages in Ha'apai and Tongatapu showed no relationship between population density and per capita garden area.

Analysis of the *per capita* levels of production of copra and bananas,

* For a fuller discussion see Maude (1970). The only effect of intense cultivation on Tongatapu soils noted by H. S. Gibbs in a paper presented to the 1971 Pacific Science Congress is a possible increase in iron nodules in areas of frequent clean cultivation. Such a change, if present, would tend to lower soil productivity by decreasing the friability of the soil.

67: Maude K-5 (1961) 1973 OU9 Tonga OU9

on the other hand, suggests that cash-crop incomes tend to be lower in areas of high population density than elsewhere. Data for banana production in rural Tongatapu in 1966, for instance, shows that while there was no relationship between population density and *per capita* production when densities were less than 200/km², in the one area of higher population density production per head fell to 55 per cent of the mean, suggesting that at this level of density land becomes a more important limiting factor in production than labour. A similar analysis of *per capita* copra income within Ha'apai in 1956 (Table 7.4) again suggests some inverse relationship between population density and income per head, but the trend shown is not

Table 7.4 Population density and *per capita* copra income, Ha'apai, 1956 (*Source:* Records of the Tonga Copra Board)

Persons/km²	*Copra income* per capita ($A)
80–149	58·4
150–229	51·2
230–309	39·6
310–379	45·0

uniform and the co-efficient of correlation between the two variables is only −0·36. For Tongatapu this type of analysis is not possible, as the variables determining the level of copra production are not sufficiently uniform throughout the island, but data from the household survey for three villages which are comparable show a clear inverse relationship between *per capita* income and population density (Table 7.5).

Table 7.5 Population density and *per capita* copra income, three Tongatapu villages. 1961 (*Source:* Records of the Tonga Copra Board)

Village	*Persons/km²*	*Copra income* per capita ($A)
Niutoua	70	37·4
Ha'akame	150	29·2
Ha'avakatolo	178	22·0

67: Maude K-5 (1961) 1973 OU9 Tonga OU9

433 The above evidence points tentatively to mild symptoms of
182 economic stress in areas of high population density. Land appears to have become a limiting factor in production given the present level of agricultural technology, but at population densities which vary according to the crop; the population density at which *per capita* banana production begins to decline, for instance, is higher than that at which *per capita* copra production is affected, because bananas
[128] are a less land-extensive crop. Much more research, including studies of nutrition, is needed before firm conclusions can be drawn.

POPULATION PRESSURE: PERCEPTION AND RESPONSE

121 To what extent are the pressures described in the last two sections consciously felt by Tongans living in areas of high population
121 density? An attempt was made during field-work in western Tongatapu, Ha'apai and eastern Vava'u to ascertain the degree to
124 which people felt hardship as a result of the shortage of land, concentrating in particular on married men without allotments as
182 these were likely to suffer the most. We recall that even in densely-
511 settled areas most men without allotments found it fairly easy to borrow land for cash cropping or collecting coconuts for copra-making. Yet only a small proportion of the men interviewed seemed to feel any hardship, all of these being men with large families to support, and most considered their income sufficient for their
[124] essential needs. About 30 men were asked what they would do with $A 1,000 if it were given to them; only one replied that he would spend it on food and other necessities, the rest stating housing or education for their children.

121 However, the degree to which population pressure is felt is better
182 determined by what men do than by what they say. There are a
166 number of possible reactions to population pressure, but only one of these, migration, is really significant in Tonga. In land tenure, for
182 instance, there has as yet been no trend towards subdivision of
423 allotments, even though this is not prohibited should the legal heir to the land be willing, and land disputes are rare. The only response by those in control of land matters, the Government and the chiefs, to the problems brought by population growth has been a belated
182 effort to complete the survey and allocation of allotments. In agri-
241 culture there has been a steady intensification of the system and a

[431 cont.]

175 cultivated, complicated, and elegant than at the Society Islands.
171 But, in return, the opulence, or rather luxury, of the Taheitians
[181] seemed to be much greater. We saw but few hogs and fowls here, and
[433] that great support of life, the bread-tree, appeared to be very
[23] scarce. Yams, therefore, and other roots, together with bananas,
[262] are their principal articles of diet. Their cloathing too, compared
[291] to that of Taheitee, was less plentiful, or at least not converted
[342] into such an article of luxury as at that island. Lastly, their
[35] houses, though neatly constructed, and always [432] placed in a
175 fragrant shrubbery, were less roomy and convenient. We made these
171 reflections as we advanced towards the landing place, where several
511 hundred natives were assembled; and their appearance immediately
struck us with the idea, that if they did not enjoy so great a
profusion of the gifts of nature as the Taheitians, those gifts
175 were perhaps distributed to all with greater equality. We advanced
609 among them, and were accosted with caresses by old and young, by men
201 and women. They hugged us very heartily, and frequently kissed our
hands, laying them on their breast, with the most expressive looks
175 of affection that can be imagined. The general stature of the men
141 was equal to our middle size, from five feet three to five feet ten
175 inches. The proportions of the body were very fine, and the contours
142 of the limbs extremely elegant, though something more muscular than
at Taheitee, which may be owing to a greater and more constant exertion
of strength in their agriculture and oeconomy. Their features were
extremely mild and pleasing, and differed from the Taheitian faces,
in being more oblong than round; the nose sharper, and the lips rather
[302] thinner. Their hair was generally black and strongly curled, and
[237]

[443 cont.]

175 123 609 I believe we should have been entirely left to ourselves if we had not engaged two of them to become our conductors. The discharge of our guns, and their effect, neither excited their admiration nor their fear; but they always appeared kind and courteous towards us. 175 609 832 Their women were, in general, [444] reserved, and turned with disgust from the immodest behaviour of ungovernable seamen, some of them however appeared to be of easy virtue, and beckoned to our people with lascivious gestures."

175 124 431 The next morning early the captain went on shore with us, and presented the chief with a variety of garden seeds, explaining by signs how useful they would prove to him. This was as yet our 175 124 197 only mode of conversation, though we had picked up a number of words, which, by the help of the principles of universal grammar, and the idea of dialects, we easily perceived had a great affinity with the [114] language spoken at Taheitee and the Society Isles. O-Mai and Mahine (or O-Hedeedee,) the two natives of Raietea and Borabora who embarked with us, at first declared that the language was totally new and unintelligible to them; however, when we explained to them the affinity of several words, they presently caught the peculiar modification of this dialect, and conversed much better with the natives than we could have done after a long intercourse with them. 175 433 [231] [276] [609] They were extremely well pleased with this country, but soon perceived it defects, and told us there was but scanty provision of bread-fruit, few hogs and fowls, and no dogs, which was really the case. In return, however, they liked the abundance of sugar-canes and of intoxicating pepper, of which the drink had been offered to captain Cook.

[475 cont.]

175 171 312 only drink of the salutary element, but likewise bathe so frequently in it that no impurity can long adhere to their skin. It is very different with a people who are absolutely denied this blessing, and who must either content themselves with putrid stagnant rain-

175 515 water in a few dirty pools, or go entirely without it. They are obliged to have recourse to expedients in order to preserve a certain degree of cleanliness, which may preclude various distempers.

175 302 171 They therefore cut off their hair, and shave or clip their beards, which doubtless makes them look more unlike the Taheitians than they would otherwise do. Still these precautions are not sufficient,

175 312 especially as they have no fluid for drinking in any quantity. The

175 164 body is therefore very subject to leprous complaints, which are perhaps irritated by the use of the pepper-root water or awa.

175 304 Hence also that burning or blistering on the cheek-bones which we observed to be so general among this tribe, that hardly an individual was free from it, and which can only be used as a remedy

000 against some disorders. The soil of the Society Isles in the plains and vallies is rich, and the rivulets which intersect it, supply

175 171 433 abundance of moisture. All sorts of vegetables therefore thrive with great luxuriance upon it, and require little attendance or cultivation. This [476] profusion is become the source of that great luxury among the chiefs which we do not meet with at Tonga-

175 433 134 312 Tabboo. There the coral rock is covered only with a thin bed of mould, which sparingly affords nourishment to all sorts of trees; and the most useful of all, the bread-fruit tree, thrives imperfectly on the island, as it is destitute of water, except when a genial

000 shower happens to impregnate and fertilize the ground. The labour

175 [476 cont.]
433 The labour of the natives is therefore greater than that of the Taheitians, and
311 accounts for the regularity of the plantations, and the accurate
171
423 division of property. It is likewise to this source we must ascribe
175 it, that they have always set a higher value on their provisions
435 than on their tools, dresses, ornaments, and weapons, though
many of these must have cost them infinite time and application.
They very justly conceive the articles of food to be their principal
175 riches, of which the loss is absolutely not to be remedied. If we
142 observed their bodies more slender and their muscles harder than
461 those of the Taheitians, this seems to be the consequence of a
175 greater and more constant exertion of strength. Thus, perhaps, they
461 become industrious by force of habit, and when agriculture does not
433 occupy them, they are actuated to employ their vacant hours in the
fabrick of that variety of tools and instruments on which they
175 bestow so much time, patience, labour, and ingenuity. This industrious
181 turn has also led them, in the cultivation of all their arts, to so
[171] much greater perfection than the [477] Taheitians. By degrees they
have hit upon new inventions, and introduced an active spirit and
175 enlivening chearfulness even into their amusements. Their happiness
181 of temper they preserve under a political constitution, which does
642 not appear to be very favourable to liberty; but we need not go so
far from home to wonder at such a phaenomenon, when one of the most
enslaved people in all Europe, are characterised as the merriest
[651] and most facetious of mankind. Still there may be more sincerity
in the chearfulness of the natives of Tonga-Tabboo; for, exclusive
of great and almost servile submission, their king does not seem
to exact any thing from them, which by depriving them of the means

632 87-92) gives a good description of the town and its character.

631 634 622 Government reaches out through a system of districts, sub-districts and villages. District and Town Officers act as agents of the government, and although they are elected to their positions, they have little or no decision-making powers. Governmental decisions and orders 622 621 are related to the people through the Town Officer in a village meeting (fono). This system exists side by side with the traditional pattern 631 565 178 of rule by nobles. The power of nobles frequently exceeds its legal limits but is accepted by the peasantry. A Tongan writing of what the result of disobeying a noble would mean to a commoner describes it in this manner,

> ...he and his family will be sacked from that village and have to start a new life under another noble or chief in another village or island. This happened very often in the past, even now but in a lower degree (Anonymous 1970).

The National Economy

439 (433) [245] [655] The economy of Tonga is based on the cultivation and export of coconut products and bananas. Government commodity boards are the only legal exporters of these products so that producers must sell to the government. Other products, primarily agricultural, are exported but in 1969 totalled less than 10 percent of Tonga's total export (Tu'ipelehake 1969: 4-5). Tables 1 and 2 provide information on Tongan exports and imports. A A

245 Recently both major crops have been threatened by factors seemingly beyond the control of government and growers. Many coconut palms have aged beyond their productive years, and an infestation of palms by the

A A [See pp. 15-17--Analyst]

[TEXT CONTINUED ON PAGE 18]

TABLE 1

Tongan Exports 1969*

439
433
435

Item	Value	Percent
Bananas	$T 684.00	20.1
Copra	2,104.00	61.9
Coconuts	15.00	.4
Desiccated Coconut--Bulk	294.00	8.6
Desiccated Coconut--Prepacked	16.00	.5
Curies and Handicrafts	32.00	.9
Fruit	8.00	.2
Fungus	18.00	.5
Ground Food	17.00	.5
Vegetables	70.00	2.1
Vanilla	7.00	.2
Watermelons	35.00	1.0
Other	99.00	3.1
Total	$T3,399.00	100.0

* Adapted from Table A.5 in An Economic Survey of Tonga 1970.

TABLE 2

Tongan Imports 1969*

Items		Value	Percent
Flour	$T	379,000	7.4
Fish, Preserved		95,000	1.9
Meat, Preserved		180,000	3.5
Meat, Frozen		256,000	5.0
Sugar		135,000	2.7
Relief Foodstuffs (American)		41,000	.8
Beer, Ale, Stout, Wines and Spirits		110,000	2.2
Cigarettes, Cigarette Papers and Manufactured Tobacco		227,000	4.5
Soap		83,000	1.6
Drapery and all Textiles		396,000	7.8
Footwear		47,000	.9
Cement		113,000	2.2
Hardware		166,000	3.3
Galvanized Roofing and Galvanized Flat Iron		79,000	1.6
Iron and Steel Bars, Roods and Sheets		43,000	.8
Paint, Putty and Varnish		47,000	.9
Water Pipes		34,000	.7
Plywood and Wallboard		46,000	.9
Timber		182,000	3.8
Wire and Wirenetting		34,000	.7

TABLE 2 (Continued)

Tongan Imports 1969

Item		Value	Percent
Motor Fuels and Lubricants	$T	134,000	2.6
Motor Vehicles and Parts		301,000	5.9
Machinery and Parts		105,000	2.1
Electrical Machinery		85,000	1.8
Boats and Launches		14,000	.3
Agricultural Machinery		38,000	.7
Agricultural Insecticides		20,000	.4
Fertilizer		26,000	.5
Animal Stock Feeds		35,000	.7
Shooks for Export		23,000	.5
Other		1,614,000	31.3
Total		$T5,088,000	100.0

* Adapted from Tables A.8 and A.9 in An Economic Survey of Tonga 1970.

CHAPTER V

VILLAGE ECONOMICS AND MODES OF EXCHANGE

433 181 178 Village economy in present-day Tonga is a composite of traditional forms of production, consumption, and exchange and Western modes of economic integration. The change from the traditional to the modern has proceeded slowly in an atmospere of conservatism and pride in maintaining the traditional life style. Traditional attitudes and values tend to force disbursement of acquired cash into areas which bring about social prestige rather than capital formation. In this chapter I would like to describe village economy as it exists under this situation of change. I also will describe and discuss the various types of exchange utilized.

128

Cash Income

241 [434] The village economy is subsistence oriented and relies upon labor-intensive, swidden agriculture as the production base. All household heads rely to some extent on cultivation for meeting basic dietary requirements and usually combine with gardening some other subsistence pursuit to provide variation in their diet and to provide cash for other needs. Table 11 gives the dominant occupation for forty-two household heads in Puke.

463

434 Cash income is derived from several sources including the sale of copra, fresh coconuts, bananas and other produce, fish, and handicrafts.

A.[See p. 74--Analysis]

80: Maude K-5 (1961) 1971 OU9 Tonga OU9

6

Tonga[1]

EQUALITY OVERTAKING PRIVILEGE

ALARIC MAUDE

THE SYSTEM of land tenure which has existed in the Kingdom of Tonga since the late nineteenth century differs in many respects from those of other parts of the South Pacific, its two most distinctive features being that land rights are granted solely to individuals, and that every taxpayer (that is, every male Tongan aged sixteen years and over) is entitled to eight and one-quarter acres of agricultural land and a small town allotment on which to build his house. These features, and others described below, raise a number of questions. Does the present system differ significantly from that of the pre-contact past? How effective is it in practice, and does it provide a sound basis for agricultural development? Are tenure changes necessary to cope with the present rapid population growth? This chapter attempts to answer these questions.

The 150 islands of Tonga are scattered over 450 miles of ocean in Western Polynesia. With a total land area of only 256 square miles they support a population of about 80,000 persons. The Kingdom's only natural resources are the soil and the surrounding reefs and seas, and the economy is overwhelmingly agricultural. Over ninety per cent of Tongans live in the three main groups of Tongatapu, Ha'apai and Vava'u, where the islands are of raised limestone formation. The surface of Tongatapu is flat or very gently undulating and as in all the islands of this type there are no permanent streams. The islands of Ha'apai are small, low and scattered, while those of Vava'u are higher and have a terraced appearance. About eighty-five per cent of the total land area of the raised limestone islands is suitable for cultivation, and the soils, being largely derived from volcanic ash, are very fertile. The main soil type of these islands is a

80: Maude K-5 (1961) 1971 OU9 Tonga OU9

code, by increasing the commoners' security of tenure, greatly stimulated the planting of coconuts. From 1887 onwards the trend in copra production can be followed from the export statistics. Between 1887 and 1912 the mean annual *per capita* export of copra increased from 0.27 tons (1887-90) to 0.54 tons (1908-12), a level which was maintained, apart from the period affected by the hurricanes of 1912 and 1913 and by the First World War, until 1930. The writer has found no evidence, however, to show whether this increase was a result of the 1882 revision of the land law.[7]

In recent years, on the other hand, the incomplete subdivision and allocation of allotments has restricted further planting of coconuts, and is one reason for the present low level of *per capita* copra production. Many parts of central and eastern Tongatapu, and of 'Eua and Vava'u, are only sparsely planted in palms, and in central and eastern Tongatapu people with large customary holdings have tended to plant only part of their land, while men who have moved to these districts and been given a plot to garden have not wished to plant coconuts until their tenure is secure. On several Tongatapu estates visited during field-work, where the land had been subdivided before the recent survey, the systematic planting of coconuts had only begun after the subdivision and allocation of allotments. In eastern Tongatapu in 1956 the mean *per capita* production of copra was 0.48 tons on estates in which most or all of the land had been subdivided into eight-and-a-quarter-acre allotments, and 0.39 tons on estates in which most of the land remained in larger customary holdings, although these means are unfortunately based on too few villages for the difference to be statistically significant. The recent allocation of allotments in Tongatapu and elsewhere (together with the Coconut Replanting Scheme which began in 1965) should result in a marked increase in the area planted in palms, and in the opinion of some Tongans the allocation has already facilitated the recent expansion in banana planting by providing more growers with a secure tenure. There are therefore grounds for concluding that when properly applied the land tenure system does provide a good basis for agricultural development.

One limitation of the Tongan system, however, is its lack of flexibility. For a variety of reasons many men find eight and a quarter acres insufficient, but because of the shortage of land it is now difficult, if not impossible, to obtain the ten or twelve acre allotments provided for in the law, and there is no un-

86: Marcus E-4,5 (1972-1975) 1977 OU9 Tonga OU9

state, church, and education. As a surviving, highly visible sector of legally supported hereditary privilege, offering exclusive access to sources of wealth, influence, and power within the Tongan new order, the nobles are increasingly criticized by Tongans and outside observers as a source of injustice in a society that was created on the themes of emancipation and individual liberty. The tempo of such criticisms has increased significantly since the succession in 1965 of Tupou IV, who is committed to modernization and closer relations with other regional and world governments.

Although viewed stereotypically by some as an anachronistic and conservative segment of society, the nobility in terms of the composition and activities of its membership cannot be fairly characterized so one-dimensionally. As social historians have shown for old elites in the transformations of European societies (see Moore, 1967; Stone, 1965), the composition of Tonga's hereditary nobility, although fixed and rigid in principle, has been characterized by a degree in fluidity. Further, its response to generally modernizing and liberating changes has in fact revealed some degree of flexibility and accommodation.

Issues raised in the public litigation of noble succession, a matter determined by law and the Tongan Land Court, offer a perspective on the nature of the social composition of the nobility and also on the significance of the noble title system as a determinant of social status in modern Tonga. The purpose of this paper is to present a detailed account of noble succession disputes and to discuss what these disputes indicate concerning the position of the nobility in modern Tongan society. I have described the modern social contexts and activities of the nobility elsewhere (Marcus, 1975b).

Trends of Change in Tongan Society

The Kingdom of Tonga consists of an archipelago of 150 islands with a total area of 269 square miles. These islands are just west of the International Dateline, about 430 miles southeast of Suva, Fiji, a similar distance southwest of Western Samoa, and about 1,200 miles northeast of Auckland, New Zealand.

Only about 36 islands of the archipelago are inhabited, and these are clustered in three main groups: the southern or the Tongatapu group, including the single largest island of the Kingdom, Tongatapu, on which the port capital of Nuku'alofa is located; the middle or Ha'apai group of widely scattered small islands; and the northern or Vava'u group of islands. The rapidly increasing population has been estimated to have reached 100,000. In recent years, land shortage and rising aspirations, resulting from increased contacts with the outside, have been accompanied by marked increases both in internal migration from the outer islands to Tongatapu and in temporary and permanent migration abroad to countries such as New Zealand and the United States. The Tongan economy is predominantly agricultural, based on mixed-crop production by

86: Marcus E-4,5 (1972-1975) 1977 0U9 Tonga 0U9

433
241 village- and town-dwelling small-holding farmers of a variety of root crops for subsistence and of copra and bananas for cash.[3]

643
565 The pre-contact Tongan political and social system was a highly stratified
175 kingship, which was an extreme case of the hierarchical social organization for
171 which Polynesia has been culturally typed (see Gifford, 1929; Goldman, 1970; Sahlins, 1958). The pre-contact sacred kingship of the Tu'i Tonga had been
177 increasingly challenged by the political competition among ruling chiefs for
797 over two centuries, when Wesleyan missionaries, arriving in 1826, began a
643 process of thorough westernization of indigenous institutions. Enthusiastically
178 accepting Christianity and the advantages of western ideas of law, government, and education, the powerful chiefly leader, Tāufa'āhau,[4] as the Christian king George Tupou I, united the islands under a constitutional monarchy and a
178 strong Wesleyan church organization. Although later a British protectorate
177 (1900-1970), Tonga was the only polity in Polynesia to maintain indigenous
642 sovereignty and remains the only surviving Polynesian kingship.[5]

[648]
[170] The institutional and legal framework for the new order has remained virtually intact during the reigns of the four monarchs of the Tupou dynasty (Tupou I, 1875-1893; Tupou II, 1893-1918; Queen Sālote, 1918-1965; and Tupou IV, 1965-). The major pre-contact social and political institutions were replaced by a monarchical state (with the kingship defined as part of the conventional executive, legislative, and judicial branches of western government)
177 and Christian church organizations. On the other hand, a number of indigenous
178 customs and values were assimilated to the innovations and persisted, particularly in the important everyday-life contexts of kin relations and of the production and exchange of traditional foodstuffs and goods such as barkcloth and mats. This early, stable complex of institutions, ideas, and practices, which integrated Tongan culture with a version of European culture, remained isolated during the early twentieth century as a neo-traditional or compromise culture and is only now being challenged by increasing political and economic contacts with other regional and world nations.

[3] The following are major sources on recent Tongan demography and economics: Bollard (1974), deBres (1974), Maude (1965, 1971), Sevele (1973), and Walsh (1964). The following are sources on modern Tongan society and culture: Aoyagi (1966); Beaglehole (1941), Kaeppler (1971), Korn (1974) Marcus (1975a, 1975b), Morton (1972), and Rogers (1968, 1975).

[175] [4] There were actually three kingships in Tonga in the century before the Constitution. In the 15th century, the 24th incumbent Tu'i Tonga conferred supreme secular power on his younger brother, while retaining for himself the highest sacred status, thus initiating a collateral line of kings called the Tu'i Ha'a Takalaua. The 6th Tu'i Ha'a Takalaua, repeating the earlier split in authority, conferred considerable authority on one of his sons, thus creating a second line of major societal chiefs or kings, the Tu'i Kanokupolu, collateral to the sacred Tu'i Tonga kingship. Tāufa'āhau was the 19th Tu'i Kanokupolu.

[5] Major secondary sources on Tonga's transformation and recent history are Lātūkefu (1974); Rutherford (1971), and Wood (1932, 1975).

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

than the way in which they noose sharks; instances of sharks attacking natives are very rare. Whales are sometimes caught. Turtles are also plentiful. Perhaps the most interesting creature in Tonga is a land-tortoise, now kept in the Palace grounds at Nuku'alofa, and reputed to have been left by Captain Cook; it has been scarred by bush-fires and other accidents, but in its old age it is honoured as though it were a chief and is called Tu'imalila, after a part of Labaha called Malila.

The graceful coconut-palm is the most distinctive as well as the most valuable of plants in Tonga. All parts of the islands being very close to the sea, coconut trees thrive everywhere, and copra, the dried kernel of the nut, is the staple product. Other plants which grow in profusion are many varieties of banana, plantain, yam, sweet potato, talo, manioc, sugar-cane, pineapple, breadfruit, papaw-apple, mango and arrowroot. Coffee, cocoa and cotton have been introduced but are not yet extensively grown. Various European vegetables have also been introduced, and corn has proved the best cereal for this climate.

Bananas, sweet potatoes, pineapples, tomatoes, pumpkins and oranges could be exported in abundance, if markets were available. The staple foodstuffs of the people are yam, sweet potato, talo, manioc, kabe, plantain, breadfruit, etc.

The bark of the paper-bark mulberry is extensively used for making native cloth (taba and gatu), and the sap of the koka tree is used for stamping this cloth. Mats are made from the leaves of the pandanus, but unfortunately this domestic manufacture is declining generally, except in Ha'abai. The trunks of the toa (ironwood) and koka are used for the posts of native buildings, but timber generally suitable for building European houses is not found in Tonga. The ironwood or casuarina tree was used for making clubs and spears formerly, and is still used for spade handles and mallets. The best of the old canoes were brought from Fiji, where more suitable timber for all purposes is available.

Kava, the juice of a species of pepper-plant, is the national drink on all occasions. Other interesting trees are the ovava, a species of banyan; gatae and tuitui (candle-nut) used for marking boundaries; Malayan apple or fekika, tava, and the ifi, whose leaves were hung round the neck in token of surrender or penitence in olden times.

Government statistics in 1931 show a total of 2,658,644 coconut trees and 832,655 banana plants in the Kingdom, 94% being owned by Tongan cultivators.

EXPORTS.

Tonga is entirely an agricultural country, being without minerals and secondary industries. It is unfortunate that there are still fairly considerable areas of undeveloped land even in such a small country, especially in Togatabu and 'Eua, and further that several hundred taxpayers have no allotments; this latter condition is mainly due to indolence on the part of some who live in the chief towns, but in the case of the overcrowded islands of Ha'abai it rises from rather a natural reluctance to leave an old home. The Government is now making strenuous efforts to enforce both more systematic cultivation of coconut-growing land and

88: Thaman K-5 (1967-1973) 1978 OU9 Tonga OU9
Tongatapu

CHAPTER I

INTRODUCTION

Background

000 Across the vast expanse of the Pacific Ocean are scattered thousands of small islands, many of which form discrete island groups. Most of these island groups have, until recently, been relatively unaffected by external contacts and have been the focus of numerous studies of traditional societies and economic systems. Within the last century, however, and particulary since World War II, the Pacific Islands have undergone considerable change owing to increasing exposure to foreign cultures, their value systems, and their technologies.

178 An excellent example of an island group which, 433 although particularly vulnerable to social and economic change today, has retained much of its traditional social structure and economy is the Tongan Archipelago or Friendly Islands in the Southwest Pacific. Cumberland (1961:272) said of this archipelago that "no other group has yet adapted its economy so successfully to the modern commercial system and at the same time retained the essential family subsistence basis of its pre-European society and economy." [648] The fact that Tonga has been able to preserve much of its traditional economy, while remaining among

178 the most sophisticated island cultures in the Pacific, can
648 be at least partially traced to a number of factors: 1)
433 Tonga is the only major Island group in the Pacific that has never been directly under the domination of a foreign power; 2) all land is owned by native Tongans; 3) Tonga is situated in a comparatively isolated and unstrategic location; and, 4) apart from agricultural produce, land, and human labor, Tonga has no known resources of any substantial economic value to foreign interests.

178 As a result, the traditional Tongan agricultural
241 system is in many ways much the same as it was when Tasman
[433 first discovered the archipelago in 1642. The diet is
[262 still based on root and tree crops as part of a "bush fallow" system, and many medicines, cosmetics, beverages, fibers, ornaments, and other subsistence needs are ful-
241 filled by the present agricultural system. However, as
433 stated by Schultz (1964: 3),

> The man who farms as his forefathers did cannot produce much food no matter how rich the land or how hard he works. The farmer who has access to and knows how to use what science knows about soils, plants, animals, and machines can produce an abundance of food though the land be poor. Nor need he work nearly so hard and long. He can produce so much that his brothers and some of his neighbors will move to town to earn a living. Enough farm products can be produced without them. The knowledge that makes this transformation possible is a form of capital whenever it is an integral part of the material inputs farmers use and whenever it is a part of their skills and what they know.

241 The present Tongan farmers have a wealth of empirical
433 knowledge about their environment and traditional crops and cropping practices. Unfortunately, as suggested by Schultz, new forms of capital are needed to provide for the
241 future. Foreign degrees in agricultural science, agri-
433 cultural machinery, pesticides and fertilizers, breeding
178 stock and planting material from overseas, and technical
177 and financial aid are already beginning to bring about
242 changes in the traditional agricultural system.

Nature of Study

128 It is the primary aim of this dissertation to look at the Tongan agricultural system as it existed in 1971-1972. Particular emphasis will be placed on plant species, plant associations, and selected agricultural practices.
121 There are two major reasons for conducting an investigation of this nature. The first is the general concern which geographers have for man's relationship with and effect on the earth. A much more immediate reason, however, is that because steadily increasing population pressure is forcing agricultural systems to change dramatically, better understanding of traditional agricultural systems can help effect change with minimum cultural disruption and shock.

Studies which have dealt with some aspects of traditional Pacific Island agricultural systems are numerous. Most of these fall into four general categories:

1) general descriptions of the agricultural landscape and

161 Table 7. Population of Tongatapu (including 'Atata and
162 'Eueiki), other islands, and Tonga.

Area	1921	1939	1956	1966
Tongatapu	9,794	15,754	31,264	47,920
Other Islands	13,965	18,376	25,574	29,509
Tonga	23,759	34,130	56,833	77,429

Sources: Tupouniua, 1958:41; Fiefia, 1968:9.

class on Tongatapu.

178 The local marketplace, Talamahu Market, is becoming
433 increasingly important as a source of food for the non-agrarian sector of the population and as a source of cash for the agrarian sectors.

175 Settlement Patterns

361 At the time of European contact, the settlement pattern was reportedly of dispersed residences on individual
[351] garden allotments in the bush. Tasman, in 1643, found that "each man lived in his own garden, the allotments being separated by reed fences" (Wood, 1945:15). Cook, in 1773, described Tongatapu as follows:

[487] > The lanes or roads necessary for travelling are laid out in a judicious manner, as to open a free and easy communication from one part of the island to the other. Here are no town or villages; most of the houses are built in the plantations, with no other order than what conveniency requires (Gifford, 1929:5).

423 Table 15. Class of tenure on town allotments held by sample households.

Village	Registered	Un-Registered	Tem-porary	Rented	Total
Haveluliku	3	5	0	0	8
Fatumu	8	13	1	0	22
Kolonga	9	8	6	1	24
Houma	4	15	2	0	21
Kolovai	14	1	1	0	16
Ha'ateiho	10	11	1	1	23
Kolomotu'a	11	0	1	0	12
Kolofo'ou	19	3	1	2	25
Ma'ufanga	6	3	1	1	11
TOTAL	84	56	14	5	159

433 Economy

The Tongan economy is predominantly agricultural, with a secondary dependence on fishing and, more recently, tourism.

463 Importance of Agriculture

462 According to the 1966 census, 67 percent of males over
162 15 years of age were employed either directly or indirectly in agriculture (Table 16) and 81 percent of Tongan women over 15 years of age are occupied with domestic chores

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Table 24. Tonga and Tongatapu copra production and exports 1942-1970 (Tongatapu figures through 1966 include 'Eua production.

Year	Total Production (1000 Tons)		Total Export Products (1000 Tons)	Value to Producers ($T1000)	F.O.B. Value ($T1000)
	Tongatapu	Tonga	Tonga	Tonga	Tonga
1942	-	-	5	-	154
1943	2	8	7	203	267
1944	5	11	11	345	483
1945	5	10	8	336	374
1946	6	13	8	522	345
1947	7	15	15	865	1,396
1948	7	15	15	1,117	1,628
1949	7	15	14	1,348	1,628
1950	8	16	17	1,331	2,017
1951	9	17	19	1,669	2,542
1952	8	17	17	2,086	2,661
1953	8	15	13	1,730	2,048
1954	8	15	14	1,878	2,448
1955	9	21	21	2,400	3,501
1956	11	22	19	2,199	2,769
1957	11	22	27	2,042	3,739
1958	9	16	14	1,391	1,999

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Table 24 continued.

Year	Total Production (1000 Tons)		Total Export Products (1000 Tons)	Valueto Producers ($T1000)	F.O.B. Value ($T1000)
	Tongatapu	Tonga	Tonga	Tonga	Tonga
1959	8	16	16	2,088	3,116
1960	9	17	16	1,841	2,754
1961	11	16	17	1,231	2,239
1962	8	10	9	726	1,095
1963	8	11	10	1,004	1,355
1964	6	10	11	988	1,582
1965	5	9	7	1,116	1,131
1966	5	9	12	884	1,791
1967	5	11	11	1,105	1,662
1968	3	8	8	876	1,399
1969	5	12	-	1,079	-
1970	5	8	-	839	-

Sources: Tonga Copra Board, 1969b:5-6; Tonga Copra Board records.

439 Table 25. Bulk desiccated coconut production and exports 1963-1970.
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Year	Production (Tons)	Exports (Tons)	Total F.O.B. Value $T1000
1963	402	402	91
1964	766	743	171
1965	933	884	245
1966	1036	922	259
1967	1099	1235	319
1968	1191	1059	379
1969	1283	1076	294
1970	1345	1538	459

Sources: Tonga Copra Board Records

245 Production of coconut oil was also attempted and proved unsuccessful.

Such attempts to expand coconut related industries
245 encountered major obstacles. Increased copra production,
435 for example, is discouraged by the instability of copra prices. The monthly price structure in Tonga is based on the average of Philippines' quotations made by the Spot Fixing Committee of the London Copra Association. Tonga has virtually no control over the price structure, which over the years has been very unstable. For example in December

89: Wood M,Y-4,5 (1924-1937) 1975
OU9 Tonga OU9

[1947-1971]

and disposed him to introduce new measures to expand Tonga's productivity. His brother, John Ngu Tu'ipelehake, also studied in Australia, specializing in agriculture. The princes' double wedding in 1947 was an occasion of great rejoicing among the people.

In 1953 the Queen visited Britain by invitation, to attend the coronation of Queen Elizabeth. There she won the affection of all who saw her, so that even to the present day the names "Tonga" and "Queen Salote" are linked in their minds. When she arrived, she soon attracted attention as "the tallest Queen of the smallest kingdom in the world". Her unaffected, yet regal, manner and her geniality made her the darling of the British public before the memorable day when, returning from Westminster Abbey, the Queen would not allow the hood of her carriage to be raised as protection against a continuous downpour. To the tumultous cheering of the hundreds of thousands who lined the route, she rode, waving enthusiastically in response to their cheers, when not wiping the rain from her forehead with her handkerchief. A leading article in a London newspaper said, "Few visitors from overseas can ever have endeared themselves so widely and speedily to the British people as the majestic lady who braved the drenching of the Coronation procession in her open carriage".

It was with great rejoicing that the Tongan people heard that Queen Elizabeth and the Duke of Edinburgh wished to include Tonga in their itinerary later in the year. All parts of Tonga vied with each other in preparing lavish hospitality. The Queen vacated her palace for the royal visitors. She felt obliged in courtesy to drive round the palace all night, and 400 men and women were on guard the whole time with flaming torches, observing an old custom. The royal party attended the Sunday morning service at the Centenary Church, with over 2,000 people inside and many hundreds outside. The President, the Rev. A. E. McKay, with the Secretary of Conference, Sau Faupula, conducted the service. The choir sang the "Sanctus" from Bach's B Minor Mass and did so with the verve for which Tongan church choirs have become renowned. In her message to the royal party after its departure, Queen Salote said, "I do not doubt that this historic occasion has renewed the store of faith and joy in the hearts of my people as rain refreshes a garden".

Tonga has been one of the most serious examples of population explosion. Efforts to increase production and to find additional exports have hardly coped with the needs of the rapidly expanding population. There has been a marked decline in the death rate and especially in infant mortality, as a result of the Government's improved medical and public health services. The birth rate, however, is still high — 29 per 1,000 in 1971. There was an increase of 35% in the population in the ten years, 1956-66. The population (always below 25,000 in the first quarter of the century) had swollen to 77,429 in the census of 1966. It is now estimated at 95,000 (1975), and to become 118,000 in 1980 — and this in a small archipelago with a total area of only 269 square miles where the inhabitants have to grow their food as well as cash-crops. The density of population is over 500 per square mile in Tongatapu, and much more in the small islands of Ha'apai where many men have no land. The family planning programme initiated by the Government has had little effect, largely through conservatism. In 1966, the average Tongan mother in the 35-45 age-group had slightly more than six children. The crowding into Nuku'alofa, which has grown from 3,000 fifty years ago to more than 25,000, has had unfortunate social consequences. Congestion,

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police force has grown steadily over the recent years. A substantial increase in tourism would almost certainly further disrupt Tongan society.

[TEXT CONTINUES TOP OF PAGE 93-B]

NOTES

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1 For changes that have occurred in Tonga, see Urbanowicz 1973 and 1975a.

2. Kingdom of Tonga 1970:35.

3. Alasdair Buchanan, 1973 and 1975.

4. The Tonga Chronicle ([TTC] April 3, 1975.

5. The date of 1958 is utilized as a "baseline," since a United Nations report analyzed the years 1958 to 1970 and pointed out that " . . . of all the items entering into world trade . . . world receipts from international tourism have experienced the fastest growth," approximately 10 percent annually (United Nations 1973: pages 1 and 3). For several years, Tongan growth has exceeded this figure.

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6. TTC, August 22, 1974.

7. Derek Freeman 1970:51.

8. See Rene Dubos 1968 [1969]:11 and George Gaylord Simpson [1971]:201.

9. Jacob Bronowski 1973:344.

10. For critical comments, see the extreme view presented by Jacques Decornoy in *The Guardian* of November 2, 1974 (translated from *Le Monde)*; for specifics about the economic impact of tourism on Tonga, see Urbanowicz 1977.

11. TTC, November 21, 1974.

12. TTC, November 2, 1972.

91: Urbanowicz E-4,5 (1970-1971) 1977
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examines the impact of tourism on the Tongan economy and the social and cultural problems associated with the advent of recent mass tourism.

The Economic Problem

Tonga is primarily an agricultural nation of small landholders. Despite Government efforts to modernize and increase food production, the natural resources of the islands are inadequate to feed the growing population. For greater cash-flow, primarily to meet Tongan consumer demands for Western products, Tonga has become an exporter of agricultural commodities. It is germane to note, however, that foodstuffs (especially meat and chicken) account for almost a third of Tonga's annual imports. In 1973, for example, total exports amounted to almost us$5,000,000, with copra being the most important export (at us$3,347,000). Dietary inadequacies among Tongans, occasioned by high food costs, are best assessed by the Minister of Health who stated in 1973 that protein-calorie malnutrition is prevalent among young Tongan children to a disturbing degree. In the same year seventeen cases of severe "nutritional deficiency" required hospitalization, two of which became fatalities.

Spiraling inflation has eroded Tongan buying power over recent years, as indicated by the Consumer Price Index (CPI). Established in 1969 with a September base of 100.0, the CPI is based on the purchasing power of a "typical" Tongan family earning less than us$37 per week. Heavily biased towards food items (64 percent of all items on the index), the CPI has risen steadily (Figure 1) to 172.4 in six years. Increases in food prices, both domestic and imported, have consistently contributed most to this upward trend. In one of the largest overall increases, 11.4 percent in the quarter of June–September 1973, the fruit and vegetable component of the CPI increased by 46.9 percent. In the second largest increase, 11.2 percent from December 1972–March 1973, this same sub-group of basic staples increased by 33.1 percent, while the cereal subgroup (bread, flour, and rice) increased by 31.6 percent.

Unemployment is another critical economic problem. In an island world where land is extremely important, many adult Tongans are without land. Although every Tongan male, upon reaching the age of sixteen (and becoming a taxpayer) is entitled to some "bush land" for crops and "town land" for a home, there simply isn't enough to go around. The Assistant Secretary in the Ministry of Finance pointed out that in 1966, 59 percent of all men over sixteen years of age who were entitled to tax allotments were landless and, no doubt, this proportion has increased by 1971. Even if the unused areas are used it may provide employment for about thirty-four hundred men, still leaving thousands unemployed.

94: Decktor Korn E-5 (1969-1970) 1976
OU9 Tonga OU9
Tongatapu
Motulahi

cultural context of population characteristics. The difference is that in one case the demographer is invited onto anthropological territory, and in the other case the anthropologist speaks the demographer's language.

Enumerating the Population of Motulahi

Rather than continuing to discuss household surveys in the abstract, I shall use my own data from the Kingdom of Tonga as an example. These materials were collected in the course of an anthropological investigation of local organization in Tonga (conducted over a ten-month period in 1969—70).

The Tonga Islands lie just west of the International Dateline in the South Pacific Ocean, east of Fiji and south of Samoa. There are about 150 named islands, but most of them are little more than elevated reefs and have no potential for cultivation or settlement. Thirty-six islands were inhabited at the time of the last reported census, held in 1966 (Fiefia 1968, Rogers 1969). These inhabited islands comprise 238.81 square miles, almost 90 % of the land area of Tonga. At the census of 1966 the population was 77,429, of whom 98.31 % were classified as Tongan (in contrast to others such as Europeans, part-Europeans, and other Pacific Islanders). The majority of the population lives in villages that are dotted throughout the islands in a nuclear pattern of village settlements. Most of the people who live in the rural areas and many of those who live in the towns are wholly or partially dependent for their livelihoods on peasant agriculture.

My research was based in the village of Motulahi, one of the largest villages on Tongatapu, the main island of Tonga. It might be asked whether Motulahi is a typical village. However, the nation of a typical village has no application to Tonga, for there is considerable diversity among Tongan villages with respect to a number of important variables. For example, there are significant differences between isolated village-islands on the one hand and villages on the relatively large island of Tongatapu on the other, or between a village on Tongatapu less than a mile from the capital town and another at the far end of Tongatapu. Villages in Tonga also differ considerably with respect to size of population, from less than one hundred people to more than one thousand, and the dimension of size cuts across the dimension of location. There

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Plant	Amount	Day on which planting must be finished
Yams.....	600	December 31, 1948
Taro.....	150	"
Manioc.....	200	"
kape.....	50	"
Bananas (siaine)....	100	"
Sweet potatoes.....	300	June 30, 1949
Maize.....	100	"
Reed (kaho).....	10	"
Kava.....	10	"
Sugarcane (au).....	50	"
Paper mulberry trees	100	"

(The governors have the power to order changes depending on local conditions.)

[425] [686] The government has the right /152/ to take away the land from the lessees who do not comply with the regulations. However, it scarcely makes use of this right. There are some plantations that are seldom visited by their owners and are rather overgrown, and no one seems to care about punishment. The majority of Tongan, however, plant approximately the prescribed amounts and often go beyond the measure stipulated of basic food plants for which the numbers are set relatively low; other plants, such as maize and the reed used for house construction, as well as sugarcane are preferably "forgotten."

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241 [462] Planting--as in old times--is purely men's work; very seldom, and then mostly for certain auxiliary work (for example, "sweeping" a freshly burned-off plantation) do women come "into the bush." The

241 461 512 average Tongan goes to his plantation several times a week (up to six times), early in the morning around six o'clock, and works at weeding, planting or harvesting until ten or eleven o'clock, and then goes back to the village. Often he visits his plantation again in the afternoon from 15 (16) o'clock until 18 (18:30) o'clock. The natives

/154 cont./

241 433 184 The following examples from a remote village and from a settlement near a seaport may show the proportion of the various products grown (survey taken April/May 1952):

	Of 97 households engaged in agriculture in 'Uiha/ 'Uiha (Ha'apai) the following number plant:	Of 42 households engaged in agriculture in Fungamisi/Vava'u the following number plant:
Yams	92	42
kape	83	42
Sweet potatoes	93	13
Manioc	96	34
Taro	93	41
Bananas	89	42
Sugarcane	46	24
Maize	67	14
Watermelons	58	6
Pumpkins	24	13
Pineapples	--	29
Onions	--	3
Cabbage	3	1
Tomatoes	1	1
Peanuts	4	1

241 262 137 /155/ Among the chief crops (yams, kape, sweet potatoes, manioc, taro and bananas) which, together with the coconut palm and the breadfruit tree, constitute the staple food of the Tongans, only manioc is a plant imported during the European period, while all the rest (including sweet potatoes) were favorite food plants even in ancient Tonga. (409)

409. See J. Cook, Beschreibung...loc. cit. VI. pp. 163, 236/237, 283/284; W. Ellis, An authentic narrative.../cited in English/ I. p. 89.

137 244 Manioc is mentioned for the first time in Tonga in 1865 by West (410)

/202 cont./

245 The entire copra production is carried out chiefly by the men.
[462] However, women and girls often help and even do such heavy work as
[857] splitting open the nuts and removing the meat. Children and old
[881] people of both sexes take part as far as they are able, especially in the easier tasks.

245 Copra is not always and everywhere prepared in this way; the
258 drying huts are more widespread on some islands than on others, and a number of Tongans, limit themselves to drying the meat of the coconuts in the sun for several days. It is only since the second World War that the Tonga dry the copra themselves. Before that the white dealers bought the cut-up coconut meat from the natives and dried it at their trading stations. Since they often bought large quantities and their storage places were limited, they were not always able to handle the copra carefully, and particularly during prolonged rainy periods they stacked the "green copra" and the "dried copra" in alternate layers in their warehouses, in order to dry the former. This method often resulted in a dark and slimy product. Through the creation of the
[435] Tonga Copra Board /cited in English/, which permits the natives to carry out the drying process themselves and gives them a stimulus for good work by staggering the prices (for A, B and C quality), Tongan copra has improved a great deal and has risen from almost the poorest level of the entire Pacific to approximately Ceylon-quality.

423 According to present-day law, which has superseded the arbitrary
425 power of chiefs, every Tonga who is granted an api'uta (527)
245 527. See pp. 172-173.
656 must plant 200 coconut /203/ palms. In practice, however, there are sometimes more, sometimes fewer palms on the individual plantations, either scattered over most of the api'uta or concentrated on one-half
245 of the land. The copra production of individual families remains about
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/203 cont./

245 the same throughout the year, since the months in which more nuts fall
433 (summer) they are usually not all gathered, whereas in the periods of rather more scarcity (winter and the dry seasons) the natives seem concerned about every nut. On a plantation of 8¾ acres an average of approximately two tons of copra may be produced in a year; since the price paid by the Copra Board for A-quality was, for example, 62£T. per ton in 1952, the owner of such a plantation was able to earn about 124£T. (or about 1170 German marks) that year for his copra, if he delivered the best quality. The plantations that are available to individual families, however, differ in size, (528)

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528. See p. 173 ff.

so that the profit in terms of money from copra production fluctuates very much among individual households, and at present amounts to perhaps 30 and 300£T. annually. (529)

529. In 1952 in the Vava'u group, for instance, every household made an average of 170£T.

245 Moreover, the price of copra constantly rises and falls on the world
435 market, (530)
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530. Before the second World War the price paid for one ton of copra in Tonga dropped to 4£T.

so that the Tongans, with their heavy dependence on copra production as their most important source of money, have experienced "rich" and "poor" periods during the past decades. Nonetheless, with the money
439 they receive for their copra production the natives are able to buy
197 various imported goods which contribute in some respects to a change
511 in their material culture as compared with the past. Most of these goods are not vitally necessary for the islanders, for today all Tongans can still support themselves solely by means of their agriculture (along with their fishing and domestic-animal raising). Since the quantities of bark cloth and mats that were made in the

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16,704 tons in 1950 and to 19,222 tons in 1951 (ibid., p. 12); only a few white planters are included in these amounts.

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Finally, the fact that the Tonga Islands, through their copra production, have become a member (though a small one) of world economy is having a certain political, commercial and, above all, economic importance for the natives, depending on the state of the world market.

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Yet the possibility of producing copra is too limited on the islands, and the traditional economic and communal system of the Tongans is too closely knit, and the people themselves are too even-tempered for this to lead to the destruction of the traditional life of the natives. The old, basic economic structure has remained. Copra and money have become an essential attribute to their former way of life, but still only an attribute that can be renounced, though renunciation would bring with it all kinds of hardships.

D. Plaiting, Knotting, and Tapa-Making

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[462]

Most Tongan women even today spend a large part of their time plaiting, knotting and making tapa.

/205/ Among the plait work, mats are particularly important on account of the labor involved in making them and their significance for Tongan daily life as well as for festivities. The following types may be distinguished: floor mats, seat mats, sleeping mats, belt mats and display mats; the "pola" plaited of coconut palm leaves, which are used to make walls and to cover roofs, are also to be mentioned here. Some of the mat types--because of various raw materials and different ways of making them--must be further subdivided into individual types. The following list may give a picture of how the most common Tongan mats are used and made:

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

121 foodstuffs. Demographically, continued urbanization was perceived
178 to be strongly correlated with undernourishment and malnutrition.
Field investigations supported the above contentions.

121 Increases in the absolute total of agricultural production have been
178 nullified by population growth. In addition, growing landlessness
433 (due to population growth and the mismanagement of the national land system), absentee landholding and the status ascribed to food imports have hastened a reduction in domestic food production.

121 Examination of preschool children conclusively showed that alter-
[178] tions in dietary quality correlated with urbanization have resulted
[145] in retarded physical development. Continued alterations in the
[146] demographic and economic structure of Tonga are perceived to be a critical factor in all future private and governmental planning.

[pi-B]

121 these conditions may be found in many parts of the world such as the islands which dot the oceans. One such microcosmic situation may be observed in the Kingdom of Tonga, which is located as an island chain in the Southwest Pacific Ocean. (Note general mapping of
161 Tonga, Figure 4, Appendix A.)[A] Population growth and diminishing
178 agricultural food production, per capita, as a ratio to total popu-
171 lation, are as serious a threat to national stability in Tonga, as
433 in the more publicized nations of the world. (The reader, if not
000 familiar with the more basic geographic considerations regarding Tonga, may, at this point, wish to review Appendix A.)[B]

161 Even though these conditions exist in Tonga, as well as in
178 other populated island groups, it must be understood that while many
171 of the Pacific islands are now facing a land-population growth cri-
174 sis, only recently have these conditions arisen. Anthropological data indicate that historically the Pacific Basin is a region of relatively recent human settlement (Harris 1966, p. 13). In the case of Polynesia, Tonga, Samoa and the Society Islands formed the core from which the population of other island groups originated (Emory 1974, pp. 732-745). The Tongas were settled probably no
174 earlier than 1100 B.C. The significance of this situation is that
167 when religious quarrels, conditions of war, or overpopulation arose, groups of island people migrated to other islands in, seemingly, an
161 ocean of innumerable islands (Harris 1966, p. 14). However, in the
167 twentieth century, uninhabited island groups are no longer to be found and since 1945, overpopulation has become a growing force,

A[See Category 102, pp. 160-164--Analyst.]
B[See various 13 Categories, pp. 157-170--Analyst.]

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

with little probability of relief. Such is the case in Tonga at the present.

With a population exceeding 95,000 scattered over 288 square miles, Tonga contains areas of rural population density in excess of 600 per square mile. Coupled with a resource base inadequate for significant industrial development, and an economy which is at present entirely dependent upon agriculture, Tonga often resembles many nations of the "underdeveloped world." However, because of a growing relationship with the British Commonwealth, a Western form of government, and a 95 percent literate population, Tonga resembles many nations of the "developed world." Characteristics of both "worlds" are found scattered over the 150 islands that comprise the nation. Therefore, here is a laboratory situation in which to study the critical issue of population growth and urbanization versus food production.

The Tongan population-agricultural imbalance may be reduced to a simple statement of conditions. Tongan population growth has in recent years stood at over 3.5 percent per year and is today among the highest of the Pacific islands. (Other island groups of the region having had high growth rates include Fiji with 3.5 percent, Samoa with 3.8 percent, and Tahiti with 3.6 percent.) Conditions in Tonga, as evidenced by the present population growth rate, indicate that the present population of 95,000 will more than double by 1990. News items from Tonga predict that this number will overwhelm the food production capacity of the land ("There's Not Enough Land . . .," 1967, p. 37). Such conditions are not yet so

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

drinking and sanitation remains, at best, in a precarious balance with growing urban population.

The process of urbanization has several causes which are significant in the framework of this research. Since the mid-1960s, the development of tourism, and its associated activities, have been stressed in the developmental plans of all island governments in the Southwest Pacific. This has had two immediate results in Tonga. First, many individuals within the agricultural sector of the population have given up their subsistence agricultural activities and moved into urban centers hoping to secure cash employment in handicraft or tourist related activities. This is particularly the case in Nuku'alofa, Tongatapu and Neiafu, Vava'u. This movement has not only rapidly increased the urban population but has also decreased the total acreage in agricultural production, or changed production from food crops to cash crops. Others of the rural population, who remain on their farms, often devote increasing amounts of time to the production of craft items. However, because of the rate of expansion in Tongan population, total rural population has continued to increase. Therefore, as rural population continues to grow, agricultural food production is decreasing and urban population is rapidly expanding.

The second important result of urbanization, without considering the social and cultural impact, is the growing reliance upon imported foods and urban oriented materials (Horine 1967, p. 43). As urban population increases and agricultural production of foodstuffs proportionally decreases, food imports become necessary.

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

245 439 capital earned by cash cropping is the result of banana and coconut product sales.

245 423 Prior to 1965, the slowness with which allotments were registered and the incomplete subdivisions of larger landholdings hindered the expansion of both the banana and coconut crops. Many informants expressed a reluctance to plant their land with such long-term crops as coconuts, until their allotments were registered 245 with the Ministry of Lands, and their tenures secure. Large scale banana production was postponed for the same reasons. Under these circumstances, the cultivation of short-term food crops has been conducted on land often sparsely planted or devoid of coconuts. [654] Since 1965, and the initiation of the Coconut Replanting Scheme, a major effort supported by the government, a marked increase in the area planted in coconut palms has resulted. This, in turn, has 241 encouraged some farmers to cultivate bananas also. Therefore, it 245 appears that the basis for developing cash crop agriculture, within the present land tenure system, is sound. However, expansion will likely fail to meet its potential unless the tenure system is strictly applied and implemented, as stated in Tongan law and theory.

241 433 According to survey respondents, the single major limiting factor to increasing agricultural production is the lack of land. Many farmers expressed a willingness to increase production, if land 241 was made available and secure to them. Assuming this willingness to 423 be reliable, the tenure system limits the average farmer to eight and 433

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

241 423 433 425 one-quarter acres, except for the above mentioned modifications, and thus significantly limits the future expansion of cash cropping. In some cases, this has led to the borrowing of land, whereby the borrowed land is used for family food production, while intensive cash cropping is carried out on the borrower's individual allotment.

241 433 128 Despite the above deterrents, agriculture remains the fundamental basis of the Tongan economy. The following chapter contains an indepth analysis of this agricultural activity.

101: Clark K-4,5 (1974) 1078 OU9 Tonga OU9

CHAPTER V

AGRICULTURAL PATTERNS

The Traditional System

Economically, Tonga is supported primarily by agriculture. Production of primary agricultural products accounts for approximately 65 percent of the nation's employment and the majority of all export earnings (96 percent in 1969). In addition to subsistence cropping, bananas and coconut are most frequently raised as cash crops. Copra is currently Tonga's major agricultural export, seconded by bananas. While the export value of bananas was greater than copra in 1967 and 1968, the occurrence of diseases, which affect the banana plant, permitted copra to regain its dominance. Copra is expected to remain the major agricultural cash crop in Tonga, during the near future.

Most Tongan men earn their livelihood as farmers, having three basic production activities. Production of subsistence crops for family consumption is the major concern of the majority of these men. Additional production activity concerns crops for local sale and crops for exportation to international markets.

Table 13 presents the major labor divisions within the Tongan Kingdom. While only 66.5 percent of the male population is engaged in agricultural employment, recent surveys indicated that a majority of the remaining work force are also part-time farmers, producing

245 retards the growth and development of the plant, and terminates fruit production.

[136] Banana scab moth, most destructive during its larval stage, may cause damage ranging from simple fruit discoloration to total [242] destruction (Plate 4, p. 74). DDT, which is frequently used to combat scab moth, has been ineffective in annihilating the pest.

241 The combined effect of these three diseases have reduced 245 internationally marketable banana production by nearly 1.5 million [433] dollars, representing approximately 30 percent of total agricultural [439] export production since 1967. Farmers are increasingly hesitant to initiate large scale banana production, unless guaranteed assistance in combating disease and plant destruction.

245 Survey interviews also attributed decreasing banana produc- 505 tion to inadequate shipping facilities. Frequently, harvested bananas are placed on a dock to await the arrival of transport 245 vessels destined for overseas markets. During this time, the fruit 439 becomes over-ripe, falling below export quality. As a consequence, [435] fruit originally priced up to $1.90 per case may be sold for as little as 40 cents. Because of this potential low cash return, 245 many interviewed farmers stated that large scale banana production was an unwise economic risk.

244 Commercial production of melons, especially watermelons, is also hindered by the inadequate scheduling of transport facilities to [505] overseas markets. Melons are also produced for Tongan markets, but [438] frequently earn only low prices, even when out of season.
[435] A[Because of poor quality of original reproductions, plates have not been marked for a Category-- Analyst.]

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

241 423 Land tenure is also related to changes in the Tongan agricultural system. The land tenure system in Tonga is the cause of considerable social dissatisfaction and economic inefficiency. Farmers are reluctant to invest significant quantities of labor or capital in land, until secure tenure has been established, thereby [565] reducing productivity levels. Since more than 50 percent of Tonga's tillable acreage is owned by royalty or nobility, the land available for crop production is severely limited. It is a general opinion in Tonga that land shortage is the major restraint upon improving agricultural productivity. However, land shortage in absolute terms is not the case. The shortage of acreage is in that which is made available to Tongan farmers by the nobility and royalty.

241 Tongan social and cultural traditions are also an influential force upon agriculture. For example, many surveyed farmers expressed a reluctance to increase production because of the corresponding increase in social obligations which would offset the [426] effort. This custom of "borrowing" cash or crops, with infrequent repayment, has caused many farmers to purposely curtail production. In addition, growing urbanization has had an enormous impact upon Tongan agriculture.

241 Despite the above, Tongan economy remains tied to agricul- 433 ture. This fact is unlikely to change in the foreseeable future, 178 despite continuing population pressure, alterations in cropping patterns, and the increasing consumption of imported foodstuffs.

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

241 Personal observations, survey data and research indicate that the
178 agricultural future of Tonga will be one of continued drain upon
433 soil fertility, decreasing production rates per man hour in food crop cultivation, and increasing reliance upon cash cropping to satisfy the needs of an agrarian population.

166 241 161 in varying degrees throughout the Kingdom, though it is greatest in Ha'apai and portions of western Tongatapu. As population pressure increases and maintaining a living through agriculture means becomes more difficult, migration from these regions can be anticipated. 241 Related to this issue are the decreasing agricultural yields resulting from lower fertility levels, shorter fallowing periods and the [166] expansion of cash cropping. When cash cropping profits become substantial enough to support a given household, independent of large scale home food production, the motivation for migrating to an urban area is high. Such migration results in absentee landholding and the utilization of friends or relatives to harvest the cash crop. Thus, agricultural acreage is removed from domestic food production, and 369 51 allocated to cash crop production. The cash earnings are used to maintain the household in the urban environment. Consequently, the family experiences an increased dependency upon a greater proportion of foreign imports in order to satisfy its food and material 369 433 needs. The effects of this are currently being felt in Nuku'alofa, a direct result of too many urban consumers being served by too few [457] rural producers. The Kingdom is operating under an increasing trade deficit in order to supplement native food production with imports (Table 20). A Eventually, this will necessitate major adjustments in the national economic profile.

369 554 [166] Migrating to an urban area such as Nuku'alofa often increases the social position of the household. Urban living is perceived as being synonymous with an improved standard of living, while agricultural employment is considered to be a lower prestige occupation.

A [See Category 457, p. 124--Analyst.]

[TEXT CONTINUED ON PAGE 125]

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

313 sector is directed to the construction of banana cases and local
313 housing construction. It should be noted, however, that since
654 1954, the Tongan Department of Agriculture has begun a small scale reforestation program designed to determine the feasibility of developing this as an exportable economic resource (Great Britain Colonial Office 1956-64, p. 22).

241 Other species of vegetation which are culturally important to Tongans are those which produce the majority of the nation's food. These include the breadfruit, coconut, banana and various root crops.

433 Until recently, Tonga has had the distinction of being one of the few Pacific territories which could be called a self-supporting community (Harris 1966, p. 127). Economically, Tonga is essentially an agricultural country. There are no notable developed mineral resources and the only industry consists of minor processing
439 facilities for agricultural products. Economic necessities from outside the islands are paid for by exports of bananas and coconut
457 products in most cases. Until recently, Tonga enjoyed a favorable balance of trade. However, this balance has tended to reverse in the past few years with the tendency toward larger and larger deficits as shown in Table 20.

511 The population in the past has been in the position to plant
[439] a large portion of their food requirements. Any cash requirements were usually provided through the sale of bananas and coconuts to regional collection points (Great Britain Colonial Office 1956-64,
511 p. 11). This subsistence system is rapidly altering due to increasing
178 [See Category 457, p. 124--Analyst.]